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TENTH
BIENNIAL REPORT

OF THE

MONTANA
State Board of Health



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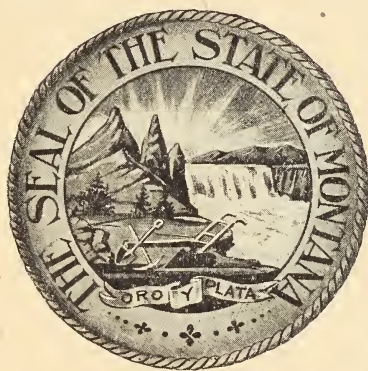
FOR THE YEARS
1919-1920

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TENTH
BIENNIAL REPORT
OF THE
MONTANA
State Board of Health



FOR THE YEARS

1919-1920

INDEPENDENT PUBLISHING CO.
HELENA, MONTANA



STATE OF MONTANA

Department of Public Health

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L. H. FLIGMAN, M. D., Vice-President.....Helena
E. G. BALSAM, M. D.....Billings
B. L. PAMPEL, M. D.....Livingston
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W. F. COGSWELL, M. D., Secretary and Executive Officer.....Helena

DIVISION OF VITAL STATISTICS

W. F. Cogswell, M. D., State Registrar, Helena

HYGIENIC LABORATORY

E. D. Hitchcock, M. D., Director, Helena

Hugh G. Jeter, Assistant Bacteriologist, Helena

DIVISION OF SOCIAL HYGIENE

F. J. O'Donnell, Director, Helena

DIVISION OF FOOD AND DRUGS

H. M. Shea, Director, Helena

W. M. Cobleigh, Director of Laboratory, Bozeman

R. C. Sherwood, Analyst, Bozeman

DIVISION OF WATER AND SEWAGE

W. M. Cobleigh, Director, Bozeman

H. B. Foote, Bacteriologist, Bozeman

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Laurie Jean Reid, R. N. Director, Helena

Marion L. Fox, Educational Secretary, Helena

DIVISION OF COMMUNICABLE DISEASE

John J. Sippy, M. D., Epidemiologist, Helena

DEPARTMENT OF PUBLIC HEALTH
OF THE STATE OF MONTANA.
OFFICE OF THE SECRETARY.

Helena, January 17, 1921.

Hon. Joseph M. Dixon, Governor,
Helena, Montana.

Sir:

In compliance with the provision of the laws of the State of Montana, I herewith hand you the tenth biennial report of the State Board of Health.

Respectfully submitted,

W. F. COGSWELL, Secretary.

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Health Building.

At the Sixteenth Legislative Session of the Montana Legislature a bill was passed making an appropriation of Fifty Thousand Dollars for a State Board of Health building where all the different divisions of the board could be housed under one roof. It was not until July 1, 1920, that the building was completed and ready for occupancy. On that date the various divisions occupied the new quarters. Work in the department, as a whole, has been much facilitated by having the various divisions in close touch with one another instead of being widely scattered as before. More efficient work has been possible with less help. It was possible to release one clerk and stenographer when the move was made. The building is modern in every particular. More furniture is needed for the various offices, except the laboratory. No reasonable and legitimate expense has been spared to equip and maintain a first class up-to-date hygienic laboratory. This was made possible by the financial aid rendered by the State Tuberculosis Association and the American Red Cross.

Hygienic Laboratory.

It was not until October, 1917, that the hygienic laboratory was put on a whole time basis by the employment of Dr. Arthur McCray, who devoted his whole time to the work. During his spare time Dr. McCray took up the spotted "tick" fever problem, with the idea of possibly being able to derive a curative serum for the treatment of the disease. He took up this work knowing fully the danger involved, as two previous investigators had, while working along similar lines, contracted the disease and died as a result. In June, 1919, while working in the laboratory, the doctor was accidentally infected with spotted fever and in spite of the best efforts of his physicians he died June 14, 1919—and thus is added another name to that long list of devoted scientists who "died that men might live."

On July 19, 1919, Dr. E. D. Hitchcock, who during the war had charge of the laboratories of the 13th Naval District, located at Bremerton, Washington, was appointed director. The aim of the State Board of Health has been to secure the very best men available as directors of its divisions, paying salaries commensurate with services rendered.

This is nothing more than a sound business policy. Dr. Hitchcock's report, which is herewith attached, shows that the work of the laboratory has had a phenomenal growth and thus emphasizes, very markedly, the fact that there is an increasing demand for such work in the State of Montana. The work done is free of charge to the people of the state. The only conditions are that the specimens be sent to the laboratory by a doctor (no matter what school) in accord with instructions sent out by the laboratory; and that the doctors do not charge the patients for the laboratory examinations. It might seem on first thought that the work of commercial laboratories would be interfered with, on account of these free examinations, but some of the best laboratory workers throughout the state claim that their work is very materially increased since the establishment of the State Board of Health laboratory, due to the fact that the people are being educated as to the proper value of laboratory examinations. In order that the work may continue and develop, more money must be appropriated, and this has been asked for in the budget submitted to the legislature. In addition to the hygienic laboratory at Helena, the State Board of Health maintains a food and water laboratory at the College at Bozeman.

Water and Sewage Division.

The law of the State of Montana places on the State Board of Health a very serious responsibility, in that, in reality, it makes the State Board of Health responsible for the purity of the water served to the people by municipalities and water companies. It also requires that all plans for proposed water and sewerage systems be submitted to the State Board of Health for approval. This responsibility and these requirements the board has attempted to meet through its water and sewage division. The report of Professor W. M. Cobleigh, chemist at the Agricultural College at Bozeman, who is director of this division, is a part of this report. All investigational work relative to water supplies and sewerage systems is under the supervision of the director of this division but the direct enforcement of the law is undertaken only by the board, through its executive officer. When he deems it necessary, the director of a division makes a recommendation to the board and it is very seldom that

these recommendations are not carried out. County and local health officers and water works officials have co-operated splendidly with this division in carrying out the provisions of the law. That the efforts of the State Board of Health, through its water and sewage division, has been markedly successful is evidenced by the fact that water-borne diseases have shown a gradual and steady decline during the past ten years. In 1910 Montana had a typhoid death rate of 39.9 per 100,000 population. In 1919 the death rate dropped to 8.2 per 100,000 population. While the 1920 figures are not yet completed, the indications are that the rate will drop even lower for that year. The decline of typhoid fever is, no doubt, due to the improvement and close supervision of public water supplies.

Realizing that time is often the main factor in the prevention of diseases when a water supply becomes contaminated, the State Board of Health by a small investment of money, secured two emergency liquid chlorine plants. These have been loaned out at different times to various cities and water companies to meet emergencies. The board also keeps on hand a small supply of liquid chlorine, which can be shipped out on short notice. As there are over twenty liquid chlorine plants in operation in the state, it sometimes happens that in some towns the supply runs out before a new supply arrives. The emergency supply kept on hand by the board is to prevent disaster, should the liquid chlorine supplies become exhausted.

The Supreme Courts of several states have decided that individuals have legal claims for damages when they contract sickness from being furnished contaminated water by cities and water companies. On account of this the State Board of Health has little difficulty in having its recommendations for improvements in water supplies carried out. It is seldom that an order has to be issued, but one town in the state persistently ignored the recommendations of the State Board of Health relative to its sewage disposal and later refused to carry out the order. Through the Attorney General's office this case was taken into court and a day set for trial. At the trial the attorney employed by the city requested the State Board of Health to appoint a commission to make an investigation as to the necessity for such an order for the

protection of public health, and he stated that the city would abide by the decision of the commission. The only stipulation that the attorney made was that Professor W. M. Cobleigh be a member of the commission. As Professor Cobleigh is director of the State Board of Health's water and sewage division, it certainly was a graceful personal tribute to his honesty and ability. As a result of the report of this commission the city immediately took steps to submit a \$150,000 bond issue to the people for a sewage disposal plant. The bonds were voted with a good majority but work has been delayed on account of difficulty being experienced in selling the bonds. The report of this commission is herewith attached.

Child Welfare Division.

Probably the greatest field for real efficient public health work at the present time is with the children of the state. The teaching of health habits; the correcting of physical defects; conducting of dental and nutritional clinics; forming Little Mothers' Leagues—all these will have a marked effect on the health of the rising generation. In order that the importance of this work may be brought to the attention of the local health and school authorities it is advisable and necessary that a strong state organization be developed to lead the way in the work, and guide and stimulate local activities. Through its child welfare division the State Board of Health is attempting this work. Charged by law with the supervision of public health nurses, a great opportunity offers itself for splendid service. There are at present fifty-six well qualified, enthusiastic public health nurses employed throughout the state. The monthly reports of these nurses keep the board in close touch with the morbidity situation in the different parts of the state. The work that Mrs. L. J. Reid has done, while eleven months in the employ of the board, is given in detail in her report.

The work of the child welfare division with the crippled children in the state deserves more than passing notice. In 1915 Montana was visited by quite a severe epidemic of infantile paralysis, which left in its wake a large number of crippled children. This was especially manifested at Billings, where the epidemic was most severe. The attention of the Woman's Club at Billings was called to the fact that there

were many crippled children in that town who were receiving no treatment, due, as a rule, to the fact that the parents of the children could ill-afford the expense of long continued treatment. This club immediately got busy and raised funds and employed Miss Marion Fox of Boston, who had special training in the after care of infantile paralysis. As a result of her work and that the health department at Billings, many crippled at that place are now walking. Observing the splendid work that has been done in Billings, the State Board of Health decided to continue the work by employing Miss Fox. This was done only after the funds of the Woman's Club for this purpose had become exhausted. The scope of the work was then broadened and undertaken in other parts of the state, wherever cripples were found. This work has demonstrated two facts. First: That there are over two hundred crippled children due to infantile paralysis; and, second: That unless the state makes some provisions for treatment, these children will go through life with this serious handicap. The State Board of Health feels it cannot longer concern itself with the treatment of these cases. It has already stepped outside its field of work—that of preventive medicine—in doing for these cripples what it has already done. It should be relieved of the treatment part of the work, but the state should make some provision for the continuance of the work. The establishment of a crippled children's ward, attached to one of the state hospitals, which employs a physician who devotes his whole time to state work, appears to be the most feasible plan. Through the county nurses the crippled children could be rounded up and sent to such an institution. As the period of treatment in all these cases is prolonged, some provision should be made for their education while undergoing treatment. They should get vocational training in occupations suitable to their particular needs.

Social Hygiene Division.

Your attention is called particularly to F. J. O'Donnell's report on work done in this division. While it is too early to make any deductions from the official reports of venereal diseases, since the reporting of these diseases extends back only a comparative short time, it is the consensus of opinion of many physicians and druggists that the incidence of these

diseases is on the decrease. This, no doubt, is due to the intensive educational campaign which has been carried on and to the treatment of many cases which were largely responsible for the spread of the diseases. It has been possible to treat the cases for a limited time. Long enough probably to put them in a condition so that they will not transmit the disease, but this is not enough. Some place should be provided where these cases could be retained until cured and where an attempt could be made at social rehabilitation. A state industrial farm for women appears to be the only solution of the problem. One great difficulty which has been encountered in the treatment of those infected with venereal diseases is that many are drug addicts and the state has made no provision for the treatment of these unfortunates.

A strong anti-narcotic law should be passed to control the illegitimate traffic of these drugs and a place should be established for the treatment of drug addicts. The state can no longer afford to ignore this great evil.

Communicable Diseases.

The State Board of Health has been fortunate in securing the services of Dr. J. J. Sippy as epidemiologist. Fully acquainted with all phases of public health work, he has been a source of strength to the whole organization. In his very complete report on the work in his division, which will be found of particular interest, it will be noticed there has been a great increase in the number of communicable diseases reported, but as the number of deaths from these diseases (influenza excluded) is in reality less, in the face of a growing population, it shows the doctors are reporting their cases better and the local and county health officers have been more active.

While the State Board of Health is heartily in favor of the establishment of whole time health departments, whenever possible, the valuable work that has been done by many part time health officers must be recognized. They have done splendid work and their hearty co-operation with the State Board of Health is in a large measure responsible for the excellent attitude of the public in general towards public health work.

Food and Drug Division.

H. M. Shea in his report has pretty thoroughly covered the work of this division. From the public health standpoint the most important work of this division is the supervision of the sanitary conditions under which food products are handled.

At the present time the State Board of Health is issuing over 2,500 licenses for meat markets, slaughterhouses, restaurants, manufacturing confectioneries, manufacturing bakeries, packing plants and canneries. This division could be made self-sustaining if a fee of \$3.00 was charged for these licenses.

Industrial Hygiene Division.

The one important phase of public health work which the State Board of Health has not been able to take up vigorously is that of industrial hygiene. It is extremely important that work along this line be no longer delayed. The study of occupational diseases, sanitary conditions under which men have to work and housing conditions should constitute the work of such a division. The formation of a strong industrial hygiene division to the State Board of Health would have a tendency to get labor and capital together on health questions. The getting them together on this question might be the means of settling other questions nearly as important. It is earnestly requested that an industrial hygiene division to the State Board of Health be created.

Extra Governmental Activities.

It has not been long since the hardest work of the health department was to combat the indifference of people toward public health work, but there has been a revolution in the attitude of the people toward such public health work. Now, the greatest task of the health department is to guide and direct public health activities which are springing up on all sides. To coordinate the work of these activities, so that there may be no overlapping and dissipation of energies, is one of the great problems of our health department.

The State Board of Health and the county and local health officers succeeded last summer in completing the organization of the Montana Public Health Association. This organization has a base broad enough to take in all public

health activities. As constituted at the present time the association has six sections, namely: Child Welfare section, taking in the State Parent Teachers' Association; the Municipal Engineers and Water Works Officials' section, taking in the State Society of Municipal Engineers; the Tuberculosis section, taking in the State Tuberculosis Association; the Public Health Administration section, taking in the local and county health officers; the Public Health Nursing section, where the public health nurses can get together and discuss their problems; the Industrial Hygiene section, where labor and capital can get together and discuss their common health problems, and the Personal Hygiene section, which takes in representatives from life insurance companies. The interest that has been manifested in this organization augurs well for public health in Montana.

State Tuberculosis Association.

Mrs. Sara Morse, secretary of this association, has been given an office in the new State Board of Health building and she has co-operated splendidly with the State Board of Health in attempting to control tuberculosis in the state. During the past two years there has been in the employ of the Tuberculosis Association at different times, in all, seventeen nurses, working in twelve different counties of the state. These nurses were placed under the supervision of the State Board of Health supervisor of nurses, and one-third of the salary and expenses of this supervisor has been paid by the Tuberculosis Association. In many other ways when the state's campaign against tuberculosis seemed to demand it, the Tuberculosis Association has contributed support financially and otherwise to the carrying out of the program of the State Board of Health.

Red Cross.

A very great impetus was given to public health work when the American Red Cross Society decided upon its peace program of public health work. It was only natural that when such a powerful organization as the Red Cross entered a comparatively new field, that in the beginning some mistakes would be made, and some friction would develop with the constituted authorities already in the field. Montana has probably had less friction in this respect than very many other states but even the little troubles that have occurred

have all been ironed out so that now the utmost harmony prevails. The Red Cross for a time paid one-third of the salary and expenses of the supervisor of public health nurses and has placed all of its public health nurses under this supervision. This society has recently contributed \$500.00 for the maintenance of the hygienic laboratory at Helena.

Licensed Embalmers.

One of the duties of the State Board of Health is to examine candidates for embalmers' licenses. In order that this work might be done efficiently, two practical licensed embalmers were appointed to act with the secretary to constitute a Licensed Embalmers' Examining Board. This board meets twice a year and examines candidates. During the past two years this board has examined fifty-five candidates and has recommended that the State Board of Health grant thirty-eight embalmers' licenses.

Recommendations.

First: The work of the Child Welfare division should be strengthened and possibly broadened. A physician with sociological training should be placed in charge.

Second: The Vital Statistics division should be made self-supporting by increasing marriage license fees and using the increase for the support of this division.

Third: Some arrangement should be made for the treatment of indigent crippled children of the state.

Fourth: A law should be passed providing machinery for a full time health department in those counties where towns wish to unite with the counties in health work.

Fifth: As the Federal Government is constructing a national leprosarium for the care and treatment of lepers a law should be passed whereby indigent lepers can be sent to this institution.

Sixth: The Harrison law for the suppression of drug traffic should be supplemented by a state law. Provision should also be made for the treatment of drug addicts.

Seventh: If the finances of the state demand it, the Food and Drug division of the State Board of Health could become self-supporting by charging a license fee to those places which are now getting a license free of charge, name-

ly: meat markets, slaughterhouses, restaurants, manufacturing confectioneries, manufacturing bakeries, dining cars, packing houses and canneries.

Eighth: An Industrial Hygiene division of the State Board of Health should be created and a first class sanitary engineer placed in charge.

December 19, 1920.

Dr. W. F. Cogswell, Secretary,
State Board of Health,
Helena, Montana.

Dear Sir:

I have the honor to transmit herewith the report of the work performed by the hygienic laboratory from January 1st, 1919, to December 15th, 1920.

From the time of the creation of the hygienic laboratory in October, 1917, until June, 1919, the work of this department was under the direction of Dr. Arthur H. McCray. In addition to the routine work Dr. McCray carried on a series of experiments into the transmission of Rocky Mountain spotted fever, contracting the disease, which resulted in his death on June 14th, 1919.

The laboratory was without a director until July 15, 1919, on which date I was appointed. During the year 1919 a total of 3,432 specimens were examined. This shows an increase in work of 159.6% over the year 1918, and represents a cash valuation on a commercial basis of \$13,793.00. The laboratory carried on all standard tests, as the Wassermann test for syphilis, the Widal test for typhoid fever; sputum examinations for the tubercular bacillus; cultures for the presence of diphtheria bacillus; smear examinations for the presence of micrococcus gonorrhea; pus, blood exudates and body fluids for the presence of disease producing organisms; tissue sectioning for malignancy; blood counts; blood grouping for transfusion; Lange's colloidal gold test on spinal fluid; faeces examination for typhoid bacillus; urine examinations and animal inoculation to determine the presence of tubercular bacilli and the typing of pneumococcus in pneumonia.

In February, 1920, we secured the services of Mr. Hugh Jeter as assistant bacteriologist, who came to us from the University of Kansas. From January 1st, 1920, to December 15th, 1920, the laboratory performed 4,261 Wassermann reactions to determine the presence of syphilis, of which 1,096 were positive. The total number of specimens examined were 7,019 which shows an increase of 104.5% over the year 1919, and represents on a commercial basis \$34,184.00 to the people of the state.

The work was greatly handicapped during the year 1919 and until July, 1920, owing to the lack of suitable laboratory quarters, but on the above date we moved into the laboratories prepared in the State Board of Health building.

The laboratory has prepared all culture media for the making of examinations for diphtheria determination, the culturing for carriers in schools as carried on by the health officers and physicians of the state. A large percentage of these cultures were examined by the city or county health officers. The laboratory is prepared to furnish such culture outfits in large numbers to physicians wishing to make throat swabs in the determination of carriers in schools or institutions.

During the past year we have increased the efficiency of the laboratory by adopting the concentration method in the examination of all specimens of sputum for the tubercular bacillus, and of 669 specimens examined 8.15% were positive.

We have recently added, as a routine measure, in the examination of spinal fluid for syphilis, Lange's colloidal gold, globulin, and Fehling's tests which are proving of benefit to the physicians in the determination of cerebro-spinal syphilis.

The sectioning of tissue and examination for cancer and other tumor formations has increased to a marked degree during the year 1920, showing a growth of 351% over the year 1919. With the education of the people to report early to their physicians where new growths are noted we can reasonably expect this work to become one of increasing value and importance.

The laboratory made 256 blood counts during the year 1920 and has also added the grouping of blood for transfusion and blood chemistry for the determination of percentages of sugar and urea content.

For the treatment of disease we prepared, in 1920, 66 autogenous vaccines. Seventy animals were inoculated for the determination of tubercular bacillus or the typing of cases of pneumonia.

The Wassermann reaction for the diagnosis and treatment of syphilis is very important to the people of this state. This work shows an increase during the year 1919 of 1218.9% and in 1920 over the year 1919 of 178.4%. We have recently agreed to adopt the United States Public Health Standard as proposed by Surgeon General Cumming, and if all the laboratories in the United States adopt this standard it will place this reaction on a more substantial basis.

At the present time this test is being run on Mondays, Wednesdays and Fridays of each week, but with the growth of this work and in the interest of efficiency, it will be necessary to run the test each day of the week. To do this it will require an additional assistant, inasmuch as the performance of this test requires the constant attention of one man most of the day.

I am now carrying on the work with one technician and owing to the volume of work find it difficult to make prompt reports. Every hour of delay in the diagnosis of diphtheria or infections of the eye due to the micrococcus gonorrhea may spell disaster and the people of the state demand an early diagnosis which will be impossible without an additional assistant.

The laboratory, though handicapped because of the lack of time, is carrying on a series of experiments into the transmission of Rocky Mountain spotted fever and the immunity conferred by repeated inoculations. We have determined that a degree of immunity is conferred by the lighter or Idaho strain which protects the animal against the virulent or Bitter Root strain which kills unprotected animals in about ten days.

This work represents many difficulties, but there are some phases of the work which I believe offer a chance for solution. To be able to pick up new strains of this disease

is a great advantage and not shared by other laboratories in the United States.

This disease represents primarily Montana's problem and the work should be carried on without interruption. The hygienic laboratory is equipped to do this work and with sufficient money available for experimental work we may expect to make further progress in the solution of this problem.

Very truly yours,
ERNEST D. HITCHCOCK, Director.

REPORT OF THE DIVISION OF WATER AND SEWAGE.

W. M. Cobleigh, Director and Chemist.

H. B. Foote, Bacteriologist and Field Investigator.

The program of work for the division of water and sewage is outlined below:

1. Investigations of public and private water supplies.
2. Efficiency tests of water purification plants.
3. Analysis of chemicals used for water purification.
4. Problems relating to swimming pool sanitation.
5. Efficiency tests of sewage treating plants.
6. Studies of cases of stream pollution.
7. Examination of plans for proposed water works and sewage treating plants.
8. Investigation of the mineral content of Montana underground waters, conducted in co-operation with the U. S. Geological Survey and the Department of Chemistry of the State College.

Summary of Investigations.

The following detailed summary indicates to what extent the above program has been followed out during the biennial period ending November 30th, 1920:

I. Laboratory Investigations of Water Supplies		Number
1. Public water supplies		899
2. Private water supplies		202
3. Swimming pool investigations		5
4. Ice		6
5. Sewage		3
II. Field Investigations or Sanitary Surveys:		
1. Public water supplies		246
2. Private water supplies		188
3. Sewage disposal systems		30
III. Classification of Samples Analyzed:		
1. Water: Bacteriological		3,537
Chemical		
a. Sanitary		218
b. Mineral		
1. City supplies		90
2. Proposed supplies		10
3. Private		75
IV. Examination of Plans for Public Improvements:		
1. Water works		13
2. Sewage disposal systems		6

Investigations of Public Water Supplies.

The water and sewage laboratory is operated under authority of the provisions of Chapter 126, Session Laws of 1917:

"An Act Giving to the State Board of Health Power to Require the Analysis of Waters Furnished and Sold to the Public, and to Provide Rules and

Regulations for Said Analysis and for the Collection of Samples of Water and to Provide Funds to Cover the Cost Involved and to Prescribe Penalties for the Violation of Said Rules and Regulations.”

The Board of Health has adopted regulations which require periodic investigations of all public water supplies in the state. A complete investigation consists of a careful inspection of the physical environment of all parts of a given water system from the sanitary aspect and also a laboratory examination of an intelligently collected series of samples taken to represent the qualities of the water in all parts of the system. An investigation of this character is made for each public water supply every six months by a representative of the water and sewage division of the State Board of Health. More frequent laboratory examinations are made of water samples collected by local health officers and by water works officials who are selected and instructed by the State Board of Health. Water samples collected in this manner are sent to the laboratory in special containers furnished by the water division. The laboratory examinations are conducted according to the standard methods of the American Public Health Association.

Upon the completion of field and laboratory investigations, complete reports upon each public water supply in the state are made. In these reports each water system is given a definite classification upon the basis of the facts brought out in the investigation. A supply is classed as “approved” or “unapproved.” Definite recommendations relative to the physical environment, construction, location or operation of the water system are made for all plants that can not be placed upon the “approved” list of public water supplies.

There are a total of 112 public water supplies in the state. Of this number 42 are owned by private companies and 70 are owned by municipalities.

PRIVATELY OWNED WATER UTILITIES.

Company	Location
Anaconda Copper Mining Company	Anaconda
Alberton Water Works	Alberton
Bear Creek Water and Light Company	Bear Creek
Belgrade Water Company	Belgrade
Bridger Water and Light Company	Bridger
Butte Water Company	Butte
Beuschlein Water Works	Marysville
Big Elk Water Company	Two Dot
Conrad City Water Company	Conrad
Citizens Water Company	Deer Lodge
Gardiner Electric Light and Water Company	Gardiner
Libby Water Works, Electric Light and Power Company	Libby
Little Chicago Water Works	Great Falls
Monida Trust Company	Livingston
Mountain States Power Company	Big Fork
Mayo, Jos.	Deborgia
Missoula Light and Water Company	Hamilton
Missoula Light and Water Company	Missoula
Neihart Electric Light & Water Company	Neihart
Norris State Bank and Mendenhall	Pony
Northwestern Improvement Company	Paradise
Oregon Short Line Railroad Company	Lima
Plains Light and Water Company	Plains
Riberdy, E. T.	St. Regis
Somers Lumber Company	Somers
South Deer Lodge Water Company	Deer Lodge
Superior Electric Light & Water Company	Superior
Saltese Electric Light & Water Company	Saltese
Talbott, J. A., Water Company	Columbia Falls
Thompson Falls Water Company	Thompson Falls
Three Forks Portland Cement Company	Trident
Virginia City Water Company	Virginia City
Valier Townsite Company	Valier

MUNICIPALLY OWNED WATER UTILITIES.

Big Timber	Glendive	Plentywood
Billings	Great Falls	Poplar
Bozeman	Harlem	Redlodge
Belt	Harlowton	Roundup
Baker	Havre	Ronan
Broadview	Helena	Saco
Big Sandy	Hardin	Scobey
Chinook	Hinsdale	Sheridan
Chester	Hysham	Shelby
Cut Bank	Joliet	Sidney
Choteau	Judith Gap	Square Butte
Clyde Park	Kalispell	Stevensville
Culbertson	Lewistown	Townsend
Cascade	Laurel	Twin Bridges
Columbus	Manhattan	Troy
Denton	Miles City	Three Forks
Dillon	Moore	Wibaux
Dodson	Malta	Whitefish
Eureka	Medicine Lake	White Sulphur Springs
Forsyth	Melstone	Whitehall
Fort Benton	Musselshell	Winnett
Fromberg	Livingston	Wolf Point
Geraldine	Phillipsburg	
Glasgow	Polson	

WATER UTILITIES OWNED BY RAILWAY COMPANIES.

Company	Name
Northern Pacific Railway	Glendive
Northern Pacific Railway	Paradise
Northern Pacific Railway	Forsyth
Northern Pacific Railway	Laurel
Oregon Short Line Railway	Lima
Gilmore and Pittsburg Railway	Armstead
Great Northern Railroad	Havre
Great Northern Railroad	Rexford
Great Northern Railroad	Neihart

Classification of Public Water Supplies.

The water supplies of the cities given in the previous lists have all been classified from the sanitary aspect. As previously stated this classification is based upon the investigation of both field and laboratory investigations.

I. The public water supplies of the following cities have been placed upon the "approved" list of public water supplies:

Alberton	Malta
Baker	Marysville
Belt	Medicine Lake
Big Sandy	Moore
Big Fork	Manhattan
Bozeman (Lyman Creek)	Phillipsburg
Butte (Basin Creek Supply)	Plentywood
Cascade	Poplar
Chester	Red Lodge
Choteau	Roundup
Columbia Falls	Saco
Denton	Sidney
Eureka (Pumping System)	Superior
Geraldine	Thompson Falls
Glasgow	Three Forks
Harlowton	Trident
Havre	Twin Bridges
Judith Gap	Valier
Kalispell	Virginia City
Lewistown	White Sulphur Springs
Libby	Whitehall
Lima	Wolf Point

II. Following is the list of cities, the public water supplies of which are "approved" because of the installation and operation of water purification plants:

Anaconda	Joliet
Butte (Big Hole and Moulton Supply)	Laurel (Northern Pacific Railway)
Billings	Livingston (Municipal)
Bozeman (Sourdough)	Great Falls
Columbus	Missoula
Chinook	Miles City
Glendive	Ronan
Hamilton	

III. The following is a list of cities, the public water supplies of which have installed purification plants. These plants do not meet all requirements of the State Board of Health. Final approval is deferred pending certain alterations that have been recommended for each plant:

Forsyth	Little Chicago
Harlem	Livingston (Monidah Trust Co.)
Laurel (Municipal)	Melstone

IV. The water plants of the following cities have not been definitely classified. The final classification will depend upon the results of future investigations which will be conducted from time to time:

Big Timber	Neihart
Belgrade	Plains
Cut Bank	Sheridan
Deer Lodge (South Side Water Co.)	Stevensville
Clyde Park	Shelby
Eureka (St. Claire Creek)	Troy
Hardin (In course of construction)	Rexford
Hysham	Whitefish (Gravity Supply)
Moore	Winnett
Musselshell	

V. The public water supplies of the following cities have not been definitely approved. Classification is deferred pending the installation of improvements, or the making of alterations which have been specifically recommended for each plant:

Bear Creek	Fromberg
Bridger	Gardiner
Conrad	Helena
Culbertson	Polson
Deer Lodge (Citizens Water Co.)	Saltese
Dillon	Townsend
Fort Benton	Whitefish (Lake Supply)

Efficiency Tests of Water Purification Plants.

Water purification plants have been installed according to the following list:

Purification Plants:

1. Filtration only—Columbus.
2. Filtration and disinfection with liquid chlorine:

Billings	Great Falls	Miles City
Chinook	Harlem	Hardin (In course of construction)
Glenview	Livingston (Municipal Supply)	

3. Disinfection:

Anaconda	Forsyth	Livingston (Montana Trust Co.)
Butte (Moulton & Big Hole Supplies)	Hamilton	Melstone
Bozeman (Sourdough)	Helena (Ten Mile Supply)	Missoula
Fort Benton	Joliet	Somers
	Laurel (Municipal)	Ronan
	Laurel (Railway)	
	Little Chicago	

Efficiency tests of these water purification plants have been conducted. Laboratory investigations of both raw and treated water are made. As far as possible it is the policy to conduct efficiency tests at each plant. A laboratory representative takes the necessary equipment to conduct the efficiency test on the ground. In addition to these efficiency tests conducted at the plant samples are submitted to the laboratory at frequent intervals by water works officials.

Investigation of Drinking Water Supplied to the Public By Common Carriers.

All railroads in the state must conform to the provisions of the Amendment to Article 3 of the Interstate Quarantine Regulations, promulgated by the Secretary of the Treasury on January 3, 1913. This amendment requires that all water supplies used to furnish drinking water to the public by common carriers in interstate commerce must be approved by the State Board of Health. The water used for the above purpose must conform to a definite standard of purity promulgated by the Secretary of the Treasury on October 21, 1914.

In carrying out the provisions of this regulation for Montana the State Board of Health makes examinations of water samples every six months from the following water supplies where water is furnished to passenger cars for drinking:

Northern Pacific Railway: Billings, Butte, Helena, Livingston, Logan, Missoula, Paradise, Philipsburg, Whitehall (ice).
 Oregon Short Line Railway: Butte, Lima, Yellowstone.
 Butte, Anaconda and Pacific Railway: Anaconda, Butte.
 Chicago, Burlington and Quincy Railway: Billings.
 Gilmore and Pittsburg Railway: Armstead.
 Gallatin Valley Railway: Bozeman.
 White Sulphur Springs and Yellowstone Park Railways: White Sulphur Springs.
 Great Northern Railway: Havre, Whitefish, Kalispell, Great Falls, Butte, Billings, Rexford.
 Chicago, Milwaukee & St. Paul Railway: Great Falls, Lewistown, Miles City, Harlowton, Deer Lodge.
 Montana Western Railway: Valier.

Swimming Pool Sanitation.

The number of swimming pools in operation in the state increases year by year and this division has not had sufficient funds to make it possible to conduct general investigations of the operation of all swimming pools in the state. Provision should be made for periodic inspections and laboratory investigations of all swimming pools in the state. During this biennial period it was only possible to conduct five investigations of swimming pools in the state.

Investigations of Plans for Proposed Water Systems and Sewage Disposal Plants.

A state law requires that all plans and specifications for proposed water works systems and sewage disposal plants be approved by the State Board of Health. To assist the execu-

tive officer, this division reviews all such plans and makes recommendations.

Plans and specifications for sewage disposal plants have been submitted from the following municipalities:

Baker
Cut Bank
Forsyth

Great Falls
Ryegate
Shelby

Plans and specifications for proposed water systems have been submitted from the following municipalities:

Big Timber
Cut Bank
Denton
Hardin
Kalispell
Musselshell
Ryegate

Stevensville
Winnett
Whitefish
Townsend
Plevna
Livingston (Municipal)

Stream Pollution.

A number of minor studies of stream pollution were conducted during the biennial period. One of these investigations yielded important results. The laboratory conducted an investigation of the pollution of the Milk river from a point above Havre to the intake of the Harlem water filtration plant. A temporary laboratory was established at Havre and a large number of samples were collected at selected points along the river. Some very important conclusions concerning the pollution of the Milk river were drawn from this investigation.

The laboratory report was used as a basis of recommendations made by a special committee appointed to consider sewage and water problems of the Milk river valley. The report of this commission is copied below.

REPORT OF THE COMMISSION APPOINTED TO CONSIDER SEWAGE AND WATER PROBLEMS OF THE MILK RIVER VALLEY.

The meeting of the Commission was held as officially called at 10 a. m., Thursday, October 9, 1919, at the city hall, Havre. The following members were present: Prof. W. M. Cobleigh, Chairman; Dr. E. M. Porter, C. W. Swearingen, Dr. W. M. Hamilton and Prof. F. C. Snow. Dr. P. H. O'Malley was absent.

Recognizing that the policies governing the safe disposal of city sewage present many difficult problems, the Commission first decided to adopt some general principles to govern their findings relative to the permissible pollution of Milk river. The Commission therefore adopted certain portions of a report prepared by the Committee on the Standards of Purity for Rivers, appointed by the President of the National Association for preventing the Pollution of Rivers and Waterways.

Extracts from Report of the Committee on Standards of Purity for Rivers and Waterways.

"This Committee finds that on account of the increasing population of the country it is and always will be physically impossible to maintain waterways in their original and natural condition of purity. A reasonable degree of cleanliness should nevertheless be demanded."

"The discharge of raw sewage into streams and harbors should not be universally prohibited by law. The method of disposal of sewage by dilution is recognized as sound in principle and safe in practice if carried on with proper restrictions.

"For each waterway at any given point, there is a limit to the amount of permissible discharge of waste matter, depending upon the use that is made of the river and the character of the territory through which it flows. No universal standard of purity can be wisely established or maintained. When the extent of the pollution is such as to affect the public health in any given way by any reasonable use of the river, the sanitary aspect of the situation should control and when the degree of pollution is such as to cause sensible offense to public decency in the course of any reasonable use of

the river, this aspect of the situation may properly control. When the extent of pollution is such as to cause material injury to fish or shellfish industries, or to the ice industry, this element may control. When the extent of the pollution is such as to cause the silting up of the channels of navigable streams, this element may control."

"Even when the demands of public health, offense to decency and interference with navigation are such as to place a limit to the pollution of the stream, the economic aspects of the case should be considered in regulating the amount of permissible discharge of waste water, the fundamental principle being that the results accomplished shall be reasonably commensurate with the cost of prevention of the pollution.

"While no universal standard of purity applicable to all rivers and waterways can be established, it is believed to be feasible to establish and maintain appropriate standards of a general nature for waters that fall within certain particular groupings. The Committee has this matter under advisement but is not prepared to report upon it in detail at this time."

Discharge of Sewage.

"Inasmuch as the safety of public water supplies is the most important element in the problem of stream pollution at the present time, the following general principles should govern the discharge of sewage and waste waters into rivers and waterways:

"Streams from which water supplies are taken without purification should not receive any fecal matter, sewage effluent or wastes that will render the water a menace to public health or otherwise impair its natural quality.

"Streams from which water supplies are taken and used after purification should not receive fecal matter, sewage, sewage effluent or waste matters in such quantities that the contamination of the water at any water works intake would put an unreasonable burden upon the purification works, or in quantities sufficient to produce the conditions referred to in the next paragraph.

"Streams not used for water supply may receive sewage wherever and in such quantities that its entrance will not sensibly offend decency in the reasonable public use of the

stream or cause interference with navigation or with valuable fish industries or the ice industry. Where this cannot be done, the sewage or wastes should receive such treatment before the discharge as to bring the effluent within this rule, due regard being given to the relative cost of the processes required and the benefits to be derived.

"The data for deciding what is a reasonable burden to place upon a water filtration plant have not yet been secured. It is recognized that water filtration plants are not infallible and for this reason the work that they are called upon to do must not be too great. Until this fundamental question is settled, it will not be possible to formulate standards of purity for streams necessarily used both for sewage disposal and for water supply. Often greater economy can be secured by abandoning water supplied from polluted streams than by attempting to reduce the pollution to the required extent.

"While recognizing that the pollution of many rivers and waterways is inevitable and that absolute prevention of pollution is impossible, it is deemed imperatively necessary that some control over the discharge of waste matter into rivers and waterways be maintained. The Committee heartily endorses, therefore, the movement that is being made to keep pollution of streams within reasonable bounds."

In applying the above principles laid down by the Committee on Standards of Purity for Rivers and Waterways, this Commission finds that the Milk river drains an inhabited area and that it receives city sewage and sewage effluent at Havre and Chinook. Further, water for public supplies is taken from the river and used after purification both at Chinook and at Harlem. The responsibility of this Commission is to apply the principles and policies of the report quoted above to water supply problems at Chinook and Harlem and to sewage disposal problems at Havre and Chinook.

This Commission finds on a careful study of the report of the Committee on Standards of Purity of Rivers and Waterways that the cities and towns on the Milk river have a dual responsibility. That is to say, city sewage entering the river above the intake of a water purification plant should be treated to such a degree that its presence in the stream will not cause an overburden on the water purifica-

tion plant. Likewise, any city obtaining its water supply from the river should install and operate a modern and up-to-date water purification plant.

Confining attention first to water supply problems, the Commission is of the opinion that Chinook and Harlem should maintain properly constructed and operated water purification and sterilization plants. This is a responsibility that must be assumed by any city securing surface water for public consumption from a stream in an inhabited valley subject to contamination from the watershed and receiving city sewage and sewage effluent.

The Commission finds that the city of Chinook has met its part of this responsibility and has installed an acceptable water purification plant, using the following processes of treatment: Sedimentation, coagulation, sand filtration and liquid chlorine disinfection. An examination of the records of the division of water and sewage shows that the Chinook water purification plant has been approved by the State Board of Health.

An investigation of Board of Health records relating to the construction of the Harlem water purification plant shows that on account of city growth this plant is inadequate to meet satisfactorily the demands placed upon it at the present time. It appears that the sedimentation tank is not suited to winter use and further that it is not large enough to meet the present demands. The construction of an adequate settling and coagulating basin would meet the present necessities until such a time as the city can secure funds to enlarge and reconstruct the entire plant. The Harlem water plant is carried on the unapproved list of public water supplies by the State Board of Health.

Considering, secondly, sewage disposal problems, the policies governing the disposal of city sewage along the Milk river depend primarily on whether there is an overburden placed by such sewage in conjunction with material normally in the river water, on water plants at Chinook and Harlem. In this connection the Commission finds on examination of the records of the State Board of Health that it is very difficult to properly treat Milk river water at the purification plants of Chinook and Harlem. This difficulty is most readily discerned by a study of the chlorine consumption at va-

rious filtration plants in the state. For example, at filter plants in Great Falls, Livingston, Billings, Miles City and Glendive, the chlorine consumption is from one pound to three pounds per million gallons of water, while at Chinook the chlorine consumption varies from three pounds when water from St. Mary's is allowed to flow into the Milk river to a maximum of 21 pounds per million gallons when the normal Milk river water is flowing. This varying quantity of chlorine necessarily makes it difficult to operate the plant successfully. It should be distinctly understood, however, that this extra chlorine dosage is required largely on account of the presence of varying amounts of naturally occurring organic matter in the water of Milk river. The necessity of using so much chlorine in conjunction with the fact that raw city sewage passes to the stream at Havre produces a condition which the Commission feels should be defined as an overburden on the Chinook water purification plant at several stages of the Milk river flow.

The Commission finds that the flow in the river varies seasonally and further varies from the full capacity of the water course to practically no free flow at certain times. This means that there is every gradation between high water and practically no flow. It therefore appears that the burden on the Chinook water purification plant varies greatly. The presence of sewage germs in any water of a high organic content is an added element of risk at all times, but more especially at particular stages of low water. With all the facts at hand, the Commission is of the opinion that the qualities of the raw water at the Chinook intake represent a condition which in all fairness should be defined as an overburden on the Chinook water purification plant.

The remedy for this overburden is to be found in the responsibility that rests on Havre for treating its city sewage. In this connection the Commission has considered carefully a detailed sanitary survey of the Milk river from points above Havre to the intake of the Harlem water works. This survey was conducted by Mr. H. B. Foote and Mr. L. C. Humphrey of the division of water and sewage of the State Board of Health from September 22 to September 30, 1919, inclusive. In conducting this survey, sampling stations were established at appropriate intervals and several series of

samples for laboratory investigation were collected. A temporary laboratory was established in Havre where part of the work was carried on and other samples were sent to the regular Board of Health laboratory for investigation.

The investigations of the laboratory show the bacterial content of Milk river water and also the chemical changes in the composition of the water at the various sampling points.

The Commission made a careful study of the investigation conducted by Foote and Humphrey and it is obvious that with the present stage of the water in Milk river the processes of self-purification have a very marked effect upon the sewage admitted at Havre. It also is quite conclusive that during times of smaller channel flow self-purification would not be effective as at present.

It is therefore concluded by the Commission that in order to secure a safe drinking water at Chinook without placing an overburden on the water purification plant that it will be necessary to partially purify the Havre sewage by economic sewage treating devices and to rely in part on the self-purifying processes of the stream and finally purify the water which is used for city supply to a high degree. The proposal to treat the Havre sewage is for the purpose of lessening the burden on the Chinook water plant, with due consideration for probable future settlements between Havre and Chinook.

Recognizing the principles in the report of the Committee on Standards of Purity, this Commission believes that the sewage treating plant advisable for Havre should be one such that the benefits derived should be commensurate with the cost of the installation. Working on this basis, the Commission finds that the necessities of the case do not demand a high degree of purification such that the water of the river could be used for domestic supplies without purification by the farmers living along the river between Havre and Chinook. The reasons for this statement are obvious from data presented to the Commission. For instance, the Milk river above Havre drains an inhabited valley and is subject to more or less contamination from the watershed. These facts, together with the laboratory investigations conducted by the State Board of Health, show that the untreated Milk river water above Havre cannot be recommended for public con-

sumption. It is therefore obvious that it would be working an injustice to suggest that Havre completely purify its sewage to that degree that the water of the Milk river could be used for drinking without purification at points between Havre and Chinook and this particularly so since there are numerous habitations on this part of the watershed which might contribute dangerous contamination together with the return irrigation water that may re-enter the stream at various points.

It is therefore the judgment of the Commission that all reasonable demands would be satisfied by the installation of a sewage treating plant at Havre consisting of a septic tank and intermittent filters. It is further suggested that the construction of the filters be such that should the necessities of the future require, a liquid chlorine disinfection plant could be installed without remodeling the plant. The liquid chlorine installation is not required at present. The Commission is of the belief that a plant handling 600,000 gallons of sewage per day is ample, based on the assumed population contributory to Havre sewers 10 years hence. Such a plant should be installed for the approximate sum of \$25,000.

To determine the possible overburden caused by Havre sewage on the successful operation of the Harlem water purification plant, the Commission studied carefully the State Board of Health sanitary survey by Foote and Humphrey. The data of this field survey and the records of the division of water and sewage of the State Board of Health indicate that the overburden on the Harlem plant is normally much less than it is on the Chinook plant. Naturally, the overburden is of a similar character at both places. However, a careful study of the laboratory data indicates that at the time of this investigation the natural purifying processes in operation in the river were such that the overburden at Harlem is caused by the Chinook sewage in conjunction with the normal qualities of the river water. It appears quite plain to the Commission that the responsibility of Chinook toward Harlem in the matter of sewage treatment at Chinook is practically in all respects identical with the responsibility of Havre to Chinook.

Data found in the Board of Health records by the Commission show that the Chinook sewage plant, which consists of a septic tank and natural gravel filtration, has not been operated efficiently at all times. In order that the proper protection may be provided for the Harlem water supply, the Chinook sewage plant should be carefully investigated. If the plant in its present condition cannot be operated efficiently, then such modifications of the gravel disposal area and septic tank should be made that a satisfactory sewage effluent can be delivered to the river at all times.

Summary.

Following is a brief summary of the chief and more important conclusions of the Commission. The details of the summary should be considered in the light of the policies laid down by the Committee on the Standard of Purity for Rivers of the National Association for the Prevention of the Pollution of Streams and Waterways as quoted in the body of this report.

I.

That the general policy applying to sewage and water problems of the Milk river which receives city sewage at certain points and at other points is used as a source of water for city supplies be governed by the general statement that all city sewage entering the river should be treated, and that all water taken from the river for domestic use should be purified.

II.

That the installation of a sewage treating plant at Havre consisting of a septic tank and intermittent sand filtration beds properly operated and costing approximately \$25,000 would discharge an effluent into the Milk river which in connection with natural purification in the river itself would sufficiently lessen the overburden on the Chinook water purification plant. It should be distinctly understood that, since untreated Milk river water above Havre cannot be recommended for public consumption, it is obvious that the complete purification of sewage at Havre is unnecessary and it also is obvious that unpurified Milk river water should not be used for domestic water supplies below Havre.

III.

It is concluded from the laboratory data that the installation of a sewage treating plant at Havre will not lessen the total organic content of the river water to an extent that materially less liquid chlorine will be required at the Chinook water plant. This high consumption of chlorine is largely due to the normally high organic content of Milk river water. However, it is believed that a sewage treating plant at Havre will materially lessen the risks involved and add an element of safety to the Chinook water supply that is necessary and important. In other words, the change in the overburden will be more real than obvious when the liquid chlorine consumption is used as the basis for determining this overburden.

IV.

That sewage treating plant at Chinook should be placed in proper shape for efficient operation in order to lessen the overburden on the Harlem water purification plant.

V.

That the Harlem water purification plant should be remodeled with particular reference at this time to its method of sedimentation and coagulation to the end that a satisfactory water may be delivered to the city mains at all times. With a satisfactory water purification plant at Harlem and with the sewage treating plant at Chinook in proper operation, together with the natural processes of self-purification in the Milk river, it is believed that the overburden at the Harlem plant can be lessened to a satisfactory degree.

Respectfully submitted,

(Signed) W. M. COBLEIGH,
C. W. SWEARINGEN,
F. C. SNOW,
W. F. HAMILTON,
E. M. PORTER.

BIENNIAL REPORT, DIVISION OF CHILD WELFARE, STATE DEPARTMENT OF HEALTH OF MONTANA.

Personnel—Director; one Educational Secretary; one Clerk.

The work of the Division of Child Welfare is distributed as follows:

Director.—According to Chapter 121, Session Laws of 1917, the director is also state supervisor of all public health nursing work. Her duties are (a) To promote all activities pertaining to the health and well being of children through co-operation with all agencies in the state; (b) To co-operate with all boards, organizations and industries employing or contemplating the employment of public health nurses, in the preparation and carrying out of plans for the nurses' work; (c) To assist the nurse in developing her work; (d) To receive reports of the public health nurses and maintain advisory supervision over all public health nursing activities.

Educational Secretary.—Because of special training for this work, the educational secretary has charge of the work for crippled children and works with Parent-Teacher Associations and Women's Clubs in promoting educational health work for children.

Clerk.—Her duties are the stenographic work for the division, attending to all correspondence during the absence of the director and educational secretary, care of the record and correspondence files, routing public health films and slides, keeping the public health nurses supplied as per their requests with literature pertaining to their work and the general office work of the division.

Biennial Report of the Director.

In submitting the following report of the activities of the Division of Child Welfare for the past ten months, I wish to call attention to the following facts:

(1) That from the period of its inception to June, 1919, the time of the director was taken up in carrying out emergency measures incident to the war, and that therefore no regular program of work had been arranged for the division.

(2) That from June to February, 1920, the position of director, Division of Child Welfare, was vacant.

(3) That public health nursing is new in Montana, and that owing to the fact that the arid areas have suffered almost total crop failures during the years 1917, 1918 and 1919, it has been difficult to induce boards of education, city councils or boards of county commissioners to take on any added expense.

TRIPS MADE IN STATE.

Malta	3	Wisdom	2
Havre	2	Dillon	3
Butte	7	Hamilton	2
Galen	2	Lewistown	2
Warm Springs	1	Kalispell	2
Wolf Point	1	Browning	2
Sidney	2	Glendive	3
Miles City	4	Baker	2
Billings	8	East Helena	2
Red Lodge	2	Libby	1
Laurel	1	Bozeman	3
Choteau	2	Deer Lodge	1
Missoula	3	Three Forks	1
Eureka	1	Anaconda	1
Harlowton	2	Columbus	1
Roundup	2	Absarokee	1
Big Timber	2	Great Falls	10
Livingston	2	Plentywood	1
Saco	1	Forsyth	1
Glasgow	1		

Conventions Outside of the State—National meeting of American Public Health Association, September 13th to 18th, inclusive. This trip was paid for personally.

Conferences Outside of the State—At Minneapolis, by request of the Northern Division, American Red Cross, regarding the supervision of Red Cross Public Health Nurses in Montana. Above conference at the expense of the Red Cross.

State Conventions Attended and Papers Given as Follows—State Federation of Women's Clubs. Paper on "Health."

Address to Public Health Nursing Section on "Public Health Nursing in Montana."

Montana State Association of Graduate Nurses. Paper on "Public Health Nursing Problems in Montana."

Metropolitan Life Insurance Company. Address.

State League of Women Voters. Paper on "Child Welfare in Montana and Necessary Legislation for the Protection of Maternal and Infant Life."

Montana Public Health Association. Attended as Secretary of Industrial Hygiene Section.

Local (Missoula) Parent-Teacher Association Meeting. Paper on "The Community's Responsibility to the Child."

Local (Butte) Parent-Teacher Association Meeting.
Paper on "Child Welfare Problems in Montana."

State Meeting Women's Christian Temperance Union.
Paper on "Child Welfare and Necessary Legislation."

State Library Association. Paper on "Venereal Disease Control and What Part Libraries Can Take in This Work."

State Teachers' Association. Paper on "Leadership."

Conferences with Clubs, Boards of Education, Boards of County Commissioners and interested individuals regarding plans for work of public health nurses employed by cities, counties, industries and private organizations—268.

Addresses to clubs and called meetings on various phases of health work—46.

Lectures on "Nursing as a Profession" to girls of student body of high schools—30.

Lectures on "Public Health Nursing Work" to student body of training schools for nurses—12.

Conferences with public health nurses regarding plan of work for the winter—12.

Lectures on "Tuberculosis and the Work of the State Tuberculosis Association," with reference to the seal sale—34.

Conferences with Dr. Lydia Allen DeVilbiss regarding the past year's work for her report—3.

Talk given at the joint meeting of the school nurses and school physical directors.

Talk to joint meeting of Parent-Teacher Associations and physical directors.

Plan made for traveling summer clinic for Mr. Milnae, superintendent of schools, Havre, this to be in connection with summer traveling library van.

Health talks, emphasizing the modern health crusade, to all grades in the following schools: Havre 2, Chinook 2, Malta 2, Saco 1, Plentywood 1, Sidney 2, Glendive 3, Glasgow 3, Forsyth 2, Butte 2.

Health talk to Camp Fire Girls, Helena.

Child Welfare stations established in Billings, Great Falls and Miles City.

Tonsil and adenoid clinic established in Miles City.

Arrangement made for nutritional work in schools and supplemental feeding of underweight children in Miles City.

Public health nursing services established during the past ten months in the following counties: Carbon, Dawson, Teton, Madison, Flathead, Custer, Yellowstone, Cascade, Sheridan, Beaverhead and Glacier.

In the following cities: Billings, Great Falls and Browning.

Industrial nurses appointed in Great Falls, Helena, Billings and Anaconda.

NUMBER OF PUBLIC HEALTH NURSES ON DUTY IN MONTANA,
NOVEMBER, 1920:

Employed by Boards of Education	20
Employed by American Red Cross	6
Employed by State Tuberculosis Association	3
Employed by Butte Tuberculosis Association	2
Employed by Boards of County Commissioners	13
Employed by Industries	9
Employed by City of Butte for Jail and Emergency Service....	1
Employed by Philanthropic Board, Billings	1
(Social Service Worker)	

November 20th to 29th, in office, prepared bill copy attached to be presented at coming legislature by State Federation of Women's Clubs. Prepared tentative plan for course in public health nursing (12 weeks) to be given at the University of Montana at Missoula, summer of 1921, copy attached. Submitted same to Chancellor Elliott of the State University.

December 16th to 19th, closing records and files at the office.

December 19th to 31st, annual leave.

NOTE: The salary of the Director has been paid jointly by the State Department of Health, \$2,000 per annum, and the State Tuberculosis Association, \$1,000 per annum. In return, the Director has had placement and direction as well as supervision of the nurses employed by the Tuberculosis Association.

Travel Expense has been paid in like proportion.

Recommendations.

(1) That the State Department of Public Health pay the entire salary and travel expense of the director.

(2) That, since state supervision of public health nurses is prescribed by law according to Chapter 121, Session Laws of 1917, an assistant to the director be appointed as field supervisor, who shall be a graduate registered nurse in the State of Montana.

Respectfully submitted,

LAURIE JEAN REID, R. N.,
Director, Division of Child Welfare.

Dated at Helena, Montana, December 16th, 1920.

**BIENNIAL REPORT OF EDUCATIONAL SECRETARY,
DIVISION OF CHILD WELFARE, STATE
BOARD OF HEALTH.**

April, 1919-August, 1919, Great Falls clinic (35 children); August, 1919-January, 1920, Helena.

Places Visited	16
Health Work at Fairs—Gilman, Helena, Billings	
Infantile Paralysis Clinics	9
Health Conferences	6

Talks:

Health Conferences	6
Teachers (District Meetings)	5
Parent-Teacher Association Meetings	4
District Meetings of Women's Clubs.....	3
Talks at Hospitals	2

Total	20
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January, 1920-January, 1921:

Places Visited	43
Health Conferences	14
Infantile Paralysis Clinics	24
Infantile Paralysis Follow-up Trips.....	10
Parent-Teacher Association Trips	8
Child Welfare Clinics	5

Talks:

School Children	50
Women's Clubs	22
Community Meetings	8
Teachers	10
Farmers' Short Courses	6
Parent-Teacher Associations	10

Total	106
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Programs arranged for Women's Clubs and Parent-Teacher Associations—10.

Little Mothers' League material sent out to nurses, Parent-Teacher Associations and others interested in work.

Junior health officer badges—85.

Interest in health work stimulated in schools through medium of Parent-Teacher Associations.

Slides and posters routed over state.

Fair work, Helena. Little Mothers' League demonstration under direction of Miss Zogarts. School lunch demonstration under direction of Parent-Teacher Association Circles and Miss Swan, County Demonstration Agent.

Children's health conference in co-operation with State Tuberculosis Society.

Infantile Paralysis Clinics	24
Cases Examined	75
Follow-up Treatments and Examinations....	150
Total	225
Braces	32
Casts	16
Operations (20 Children)	44
Pairs of Shoes Bought	12
Special heels, etc., innumerable.	
Scoliosis	8
Spastics	15
Children to be Seen	25
Operations Needed	10
Operations Arranged for Out of Clinic.....	8
Children Referred to Bureau of Child and	
Animal Protection	7

MARION L. FOX,
Educational Secretary, Division of Child Welfare.

BIENNIAL REPORT OF THE SOCIAL HYGIENE DIVISION, MONTANA STATE BOARD OF HEALTH, 1919-1920.

Dr. W. F. Cogswell, Secretary,
State Board of Health,
Helena, Montana.

Dear Sir:

I am herewith submitting report of the Social Hygiene Division of the Montana State Board of Health for the biennial period, January 1st, 1919, to December 31st, 1920.

Respectfully,

F. J. O'DONNELL,
Director.

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Creation of Division.

It has been said that venereal diseases would never come under public health control because they were "secret" diseases and "different from other diseases," and yet the incidence and prevalence of syphilis and gonorrhea are second only to that of measles.

As a factor in the social and economic loss and as a cause of ill-being, pain and death, these diseases stand at the head of the list. They are dangerous, contagious diseases and, because of their insidiousness and far-reaching effects, they form the greatest present day problem of public health. Congress recognized the danger and by the passage of the Chamberlain-Kahn Act created in the United States Public Health Service a division of venereal diseases and made a large appropriation for financing this division; and also made provision for aiding the State Boards of Health in a financial and educational way. This action by Congress made the United States Public Health Service the leader in the venereal disease control campaign.

As a result of the efforts of the Public Health Service every state, with the exception of one, now has a venereal disease control law and in every instance these laws have been held to be constitutional by the supreme court in every state in which test cases were brought.

Regulations for the control of venereal diseases as proposed by the Surgeons General of the Army, Navy and United States Public Health Service were, with slight modification, adopted at a special meeting of the State Board of Health held on July 20, 1918.

In order to furnish the proper machinery for the enforcement of these regulations a division of venereal diseases was created by the board at a special meeting held on August 26, 1918.

Experience has shown that law is usually more effective than regulation; therefore, in order to make the venereal disease control work as effective as possible, a bill was prepared and introduced at the Sixteenth Legislative Session. It was passed and became a law and is known as Chapter 106, Session Laws 1919.

This law was copied from the standard form law approved by the United States Public Health Service, to which was added the regulations passed by the State Board of Health on July 20, 1918.

This Act makes it unlawful for any one to expose another person to venereal infection; requires the reporting by number of all cases coming to the attention of doctors or druggists; provides for isolation hospitals and the quarantine of certain infected persons and empowers the State Board of Health to make rules and regulations for the carrying out of the provisions of this Act. Under this latter provision (Sections 13 and 14) a very complete set of rules and regulations were made and adopted at a special session of the State Board of Health held on December 4, 1919.

Operation of Law.

(a) **Reporting.** Section 2 of the venereal disease control law requires "any physician or other person who makes a diagnosis in or treats a case of venereal disease to keep a record thereof, and shall report such case immediately in writing to the local or county health officer." Some difficulty has been encountered in getting physicians to report their cases. This is also true of the druggists. A certain class of doctors are indifferent, others antagonistic. Some advance the argument of the confidential relationship between physician and patient; and the druggist objects to reporting cases coming to his attention on the ground that to do so injures his business. A close examination of these arguments shows them to be without legal merit. The right of the public to demand and receive protection is paramount to and supersedes the interest or right of the individual.

From the time the venereal disease control regulations became effective, September 1st, 1918, to January 1st, 1919, 497 cases of venereal diseases were reported to the State Board of Health. For the period January 1st, 1919, to November 30th, 1920, there were 1,091 cases of syphilis, of which 244 cases were reported by the state hospital at Warm Springs; and 2,565 cases of gonorrhea; a total of 3,656 cases. Of this number 997 cases of gonorrhea were reported by drug stores. These figures probably do not represent to exceed 5 per cent of the actual number of cases. Indeed, if we accept the minimum estimate of 8 per cent for the United

States as a whole we will be compelled to admit that we have 43,800 cases of syphilis alone in the state. However, the number of cases reported is sufficiently large to fairly represent the age groups and social status of the incidence of the disease in the state.

Classification of Cases. Tables one and two give a classification of the cases reported as to age, social relations, etc. It will be noted that the number of cases thus classified is considerably less than the total number of cases reported. This is due to the number of cases reported by the drug stores. These reports are made by the druggists on the sale of drugs or remedies commonly or presumably used for the treatment of venereal diseases and are incomplete so that it is not possible to classify them the same as cases reported by the doctors.

TABLE NO. I.—GONORRHEA AND SYPHILIS—1919.

Age	-1		1-2		3-4		5-9		10-14		15-19		20-24		25-29		30-34		35-39		40-44		45-49		50-59		60-69		70-79		80-89		90-99		Unk.	Totals			
Disease	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S			
MALE																																							
Single	1	1					1				44	9	141	30	116	33	87	28	36	16	17	11	8	8	2	10	1	1								4	3	458	150
Married											4	17	7	36	9	36	14	18	19	14	11	8	6	3	4	1	1								3	1	140	76	
Widowed													2		4	1	4	2	4	1	4	2	1											1		21	6		
Divorced													1		2	1	3	4																	1		9	8	
Unclassified											1		9	3	15	3	5	2	6		2		1	1	2	1								4	5	45	15		
Totals	1	1					1				49	9	170	40	171	46	134	47	67	40	37	25	20	15	7	16	4	1	1					12	9	673	250		
FEMALE																																							
Single											15	5	9	6	8	6		4		2																33	24		
Married											5	14	12	7	21	4	15	2	5	2	6		3													34	66		
Widowed														4		2	1	2		4		1												1	13				
Divorced											1	1	6	3		4	2	3		4	1	2												1	10	18			
Unclassified											1		3	1	1			1																	1	6	4		
Totals							1				22	6	32	26	16	33	7	25	3	15	3	9	0	4	5										2	84	125		
Grand Totals	1	1					2				71	15	202	66	187	79	141	72	70	55	40	34	20	19	7	21	4	1	1					12	11	757	375		
																																				Chancroid			4
																																				Balanitis Erosive			1
																																				Black			13
																																				Indian			6
																																				Yellow			6

Control Measures.

Quarantine. The principles underlying the venereal disease control program differ in no wise from the sanitary principles applied in the control of other dangerous and contagious diseases, such as scarlet fever, smallpox, diphtheria, etc. It is not the intent of the law or the regulations of the Board of Health to place upon the victim of venereal disease restrictions that will work an unnecessary hardship or be unreasonable in the premises. It is, however, often necessary to quarantine certain persons who, because of their careless or immoral habits, are a menace to public health.

Sections 3 and 7 direct and empower state, county and local health officers, when in their judgment it is necessary, to protect the public health, to isolate or quarantine persons infected with venereal disease. Under this provision of the law 367 cases have been placed in quarantine or detention hospitals. But few of the counties have made provision for the proper care and quarantine of venereally infected persons and only too frequently the county jail is the only available place. This is a deplorable condition. Treatment under such circumstances can hardly be expected to accomplish the best results. This is especially true in the case of women patients. The environment is depressing; the attendants unsympathetic; the patients are treated as prisoners and not as sick persons; the usual fare is such that it cannot be modified and made suitable for the diet of a patient.

A number of the counties of the state have county hospitals which with a little additional expense might be utilized for treatment and detention purposes. Unfortunately the number of these is limited and in view of the present financial conditions obtaining throughout the state, the venereal disease program cannot hope for a large amount of assistance from this source.

In considering this phase of the problem the writer ventures to suggest a possible solution. Under the present law the county commissioners cannot expend more than \$10,000 without submitting the proposition to a vote of the people, and certainly with the present cost of labor and material no hospital worthy of the name or the needs of the average county can built for any such sum.

However, granting that each county would spend this sum, it would mean that the total cost to the entire state would be no less than a half million dollars, exclusive of the cost of maintenance. Would it not be more economical if some attention were given to the pooling of county resources or else that the state might make an appropriation for the establishment of a central institution?

A quarter of a million dollars or even only \$100,000 should be sufficient to provide a most ideal institution with all facilities and full time trained attendants.

Such an institution should be available for women and girl sex offenders and should include in its program not only methods of treatment, but provision should be made for education, rehabilitation and training.

Clinics. Clinics have been established in Butte, Billings and Great Falls. In Billings and Great Falls the clinics are in charge of a whole-time health officer and are financed jointly by the city and county. Silver Bow county has assumed full responsibility for the clinic in Butte and has placed a deputy county health officer in charge, who has also been appointed deputy city health officer. Since the establishment of these clinics 579 patients have been admitted and have received treatment.

In those cities where clinics have been established the lack of funds for the employment of sufficient personnel, particularly follow-up or social workers, has seriously handicapped the proper functioning of the clinics. Only those who have had experience in the conduct of clinics can appreciate the extreme importance of the social welfare nurse whose duty it is to see that cases remain under treatment; that their home and working environment are such as not to menace the health of others; that the sources of infection are traced and all infected individuals are made to understand the seriousness of the disease and the importance of abiding by the instructions of the physician or the clinic.

Distribution of Arsphenamine. Through an arrangement effected by the United States Public Health Service the board has been able to procure arsphenamine and neoarsphenamine direct from the laboratories at a price slightly above the cost of production. This reduced cost has enabled

the board to supply these products to the clinics free of charge and to physicians for the treatment of their indigent cases; 2,395 ampules of arsphenamine and neoarsphenamine have been sent to the clinics and 346 ampules have been requisitioned by private physicians for the treatment of indigent cases.

Co-operative Measures.

Local and County Health Officers and Police Officials.

Local and county health officers have as a rule shown some interest in the campaign; others, however, either because they are so poorly paid or because they have failed to grasp the importance of the problem, have done little or nothing to advance the work. The indifferent attitude of local police officials makes it often extremely difficult for the health officer to enforce the law.

Co-operation of Attorney General. The support given this division by Hon. S. C. Ford, Attorney General, has been very encouraging. He has taken a keen interest in the venereal disease control campaign, particularly so in the repression of prostitution. On two occasions when he contemplated raids on questionable rooming houses he has requested a representative of the State Board of Health to be present to serve detention orders on alleged prostitutes for the purpose of holding them for examination for venereal infection.

United States Public Health Service. The United States Public Health Service has rendered us invaluable service in many ways. Through their efforts Montana has received \$10,770.51 in Federal aid from the Chamberlain-Kahn funds. Three field representatives have visited the state at different times during the past two years and have assisted in directing the work in the state. All of the larger towns in the state were visited and many lectures and short talks given. The Bureau has also furnished us with many educational pamphlets and given us valuable information on many perplexing problems.

Educational.

Pamphlets. The educational phase of the campaign against venereal diseases is considered by leading authorities the most important factor in the ultimate success of the program. Venereal diseases spread largely because of public

ignorance concerning them. Since the creation of the division, August, 1918, 154,000 educational pamphlets have been printed. These pamphlets have been written by some of the leading authorities and have the approval of the U. S. Public Health Service and are intended for young men and women, boys and older girls, parents, teachers and the general public; 96,685 of these pamphlets have been distributed to the public through schools, clubs, churches, public health nurses, health officers, etc.

Slides, Films, Exhibits, Lectures. One hundred fifty-seven lectures and informal talks have been given, at which 9,478 persons were present. These lectures and talks were given to business men, city and county officials, in clubs, churches, lodges, but the greater number to high school pupils with the aid of the government's "Keeping Fit" exhibit for boys.

This exhibit was prepared by the U. S. Public Health Service and consists of 24 cards, 22x28 inches in size, and 50 lantern slides. An attractive pamphlet entitled "Keeping Fit" is distributed among the boys after the lecture and showing of the exhibits; 10 sets of slides and 11 sets of cards were purchased for use in this state.

Mr. Leslie E. Eichelberger of Billings, State Boys' Work Secretary for the Y. M. C. A., was appointed State Supervisor in charge of the "Keeping Fit" campaign for the 1918-1919 school year. He appointed a number of district supervisors whose duty it was to carry on the work in their respective districts. In this way about 2,000 high school boys were reached. For the school year 1919-1920 Mr. W. L. Adams, Secretary of the Y. M. C. A. at Billings, took charge of the work and under his supervision about 3,000 boys heard the lectures and saw the exhibit. A total of 67 card showings and 61 slide showings were made during the two years.

Mr. Eichelberger and Mr. Adams and their field deputies are entitled to a great deal of credit for the work they performed. They served without remuneration, receiving only their actual traveling expenses and oftentimes neglecting their private interests to carry on the work.

The matter of procuring a set of the approved social hygiene motion picture films was considered, but because of the large expense which would necessarily be incurred not

only for the copies of the films but also for a projection apparatus, it was decided to postpone action until our finances were in a more healthy condition. However, about seventy showings of the films "Open Your Eyes," "Fit to Win" and "The End of the Road" were made in the motion picture houses throughout the state by commercial agencies.

Special Campaigns. The week of December 5 to 11, 1920, was designated by the Governor as Health Week. The Rotary Clubs were primarily responsible and took a very active part in this movement. In all of the larger communities several committees were appointed to inquire into the various phases of health work. Along with others was a committee to investigate venereal disease control work. Practically all of these committees submitted very good reports of their findings, together with recommendations for improvements in the program. They also took charge of the distribution of educational literature. During the week 30,484 pamphlets were mailed to the various clubs and committees.

Miscellaneous.

In addition to the duties devolving upon the writer as director of the Social Hygiene Division it has frequently been necessary to assist in other activities of the board. Three liquid chlorinators were installed on the Helena water supplies; twelve inspections were made of these chlorinators during the summer of 1919 and 1920. One sanitary survey was made of a proposed water supply for the Federal Reserve Bank at Helena. Samples for bacteriological and chemical analysis were collected at that time. A chlorinator was also installed at the East Helena smelter and several inspections were later made of this plant.

Late in the fall of 1919 a trip was made to Browning to investigate an outbreak of typhoid fever. Eleven trips were made to Great Falls to assist in organizing a full-time health department for the city of Great Falls and county of Cascade. Four trips were made to Butte for a like purpose.

Office Activities. Prior to August, 1919, this division had the part-time services of one stenographer; after that date and up to July, 1920, the division enjoyed the services of a full-time clerk and stenographer. At the present, be-

cause of a shortage of funds in the hygienic laboratory, the services of the stenographer is divided between this division and the laboratory.

Fourteen circular letters have been issued to physicians, druggists, school superintendents, ministers, labor unions, women's clubs, newspapers, etc.; in all about 10,000 such letters have been mailed in addition to the 96,685 educational pamphlets referred to under "Education." Copies of Chapter 106, Session Laws 1919, together with the regulations made in conformity therewith, were prepared and printed in pamphlet form and mailed to all of the doctors, druggists, police officials, sheriffs and county attorneys in the state. About 1,500 copies in all were mailed. Twenty thousand report forms V. D. Nos. 1 to 9, inclusive, have been printed and about one-half of this number have been distributed among the doctors and druggists. In addition to these a copy of the U. S. Public Health Service "Manual for the Treatment of Venereal Disease" has been sent to every doctor in the state.

Conclusion.

During the past two years this division has been financed jointly by Federal aid and state appropriations on a fifty-fifty plan, i. e., the Federal Government paying fifty per cent and the state paying fifty per cent of the expenses of the division. Recent advices from Washington indicate that the appropriations for state aid will be eliminated by the present Congress. In that event it will be necessary for the coming session of the legislature to very materially increase the appropriation over that of two years ago if the work of this division is to continue unhampered during the coming two years.

In the budget submitted for the ensuing biennium allowance was made for the probable withdrawal of Federal aid and it is hoped that the appropriation asked for will be given in full.

In closing, your director wishes to say that what has been accomplished by this division is due in a large measure to the co-operation of the physicians and druggists throughout the state. And also expresses his appreciation of the support given him by the Secretary and members of the State Board of Health and the directors of the other divisions of the department.

Summary.

1. The incidence and prevalence of gonorrhea and syphilis are second only to that of measles.

2. Venereal diseases form the greatest present day problem of public health.

3. Congress recognized the danger and created in the U. S. Public Health Service a Division of Venereal Diseases.

4. Large appropriations were made for financing this division and for aiding State Boards of Health.

5. Every state, with the exception of one, now has a venereal disease control law.

6. Supreme courts have held these laws to be constitutional in every state where test cases were brought.

7. Regulations for control of venereal diseases adopted by Montana State Board of Health in July, 1918. Division of Venereal Diseases created August, 1918. Chapter 106 passed February, 1919. Regulations in conformity with provisions of Chapter 106 adopted by State Board of Health December, 1919.

8. A total of 4,053 cases of gonorrhea and syphilis have been reported since the creation of division.

9. It is estimated that there are 43,800 cases of syphilis in the state.

10. Three hundred sixty-seven persons have been placed in quarantine or detention.

11. But few counties have made proper provision for the care of venereally infected persons. Too frequently the county jail is used for this purpose.

The pooling of county resources or a state appropriation for the establishment of a central institution for the care of indigent or careless women and girl sex offenders should be given serious consideration.

12. Three free clinics have been established in the state at which 579 patients have received treatment. Clinics are seriously handicapped by lack of funds for the employment of personnel, social workers, etc.

13. Two thousand three hundred ninety-five ampules of arsphenamine and neoarsphenamine have been furnished to the clinics and 346 ampules sent to private physicians for the treatment of indigent cases.

14. The indifferent attitude of the local police officials often makes it difficult for health officers to enforce the law. Attorney General's office has shown a great deal of interest in the campaign and given the division much valuable assistance.

15. The U. S. Public Health Service has co-operated and aided in many ways. Through their efforts Montana has received \$10,770.50 in Federal aid.

16. One hundred fifty-four thousand educational pamphlets have been printed; 96,685 pamphlets have been distributed to the public.

17. One hundred fifty-seven lectures and talks have been given to 9,478 persons; 5,000 high school boys saw the "Keeping Fit" exhibit. Seventy showings of social hygiene films were made by commercial agencies.

18. During Health Week (December 5-11, 1920), 30,484 pamphlets were distributed by Rotary and Commercial Clubs.

19. In addition to performing the duties of director of the division four liquid chlorinators were installed on water supplies. Fifteen special trips were made to Great Falls and Butte to assist in the organization of full-time health departments. One special trip to investigate an outbreak of typhoid fever.

20. Approximately 120,000 educational pamphlets, circular letters, copies of the V. D. law and report forms have been issued. In addition to these several hundred personally dictated letters have been mailed.

BIENNIAL REPORT OF THE DIVISION OF COMMUNICABLE DISEASE, MONTANA STATE BOARD OF HEALTH, 1919-1920.

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Creation of Division.

Study and Control of Disease Prevalence.

- (1) Encouragement of Reporting.
- (2) Prevalence of Disease.
- (3) Supervision of Quarantine Through Health Officers.
- (5) Control Measures.
 - (a) Influenza.
 - (b) Tuberculosis.
 - (c) Distribution of Antitoxins, Vaccines and Serums.
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Sanitary Investigations.

- (1) Nuisances.
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Educational.

- (1) Preparation and Distribution of Literature.
- (2) Slides, Films, etc.
- (3) Lectures, Talks, etc.
- (4) Special Campaigns.

Other Duties.

- (1) Acting Assistant State Registrar.
- (2) Miscellaneous.
Office Activities.
Conclusion.

Dr. W. F. Cogswell, Secretary,
State Board of Health,
Helena, Montana.

Dear Sir:

As Director of the Division of Communicable Disease of the Montana State Board of Health, I herewith submit the following report for the biennium of 1919 and 1920:

Creation of Division.

Prior to the legislative enactment of March 3rd, 1919, there appears to have been no distinct divisional work for the prevention and control of communicable disease, such work having been carried on by the Secretary of the Board as a part of his many duties. The Act referred to created the position of State Epidemiologist, appropriated funds for office support, and was supplemented by another fund to be devoted toward the prevention and suppression of communicable disease, thus affording well marked legislative recognition of the fact that the prevention of communicable disease and unnecessary deaths is to be regarded as the chief function of public health activities. Your Epidemiologist assumed the duties of the office April 10th, 1919.

Study and Control of Disease Prevalence.

(a) **Encouragement of Reporting.** The reporting of communicable disease is the index of community interest in disease control. While physicians are always more than willing to assist health authorities in securing knowledge of disease existence, yet they are often deterred from prompt reporting or become indifferent through the indifference or actual opposition to preventive measures on the part of their communities. Yet without a knowledge of the occurrence and location of cases, no communicable disease control measures can be successfully instituted. It is the duty, therefore, not only of communities but of the entire state to insist upon complete and thorough registration of all cases of preventable infections.

At the May, 1919, meeting the State Board of Health enacted the model morbidity report regulation as recommended by the Association of State and Provincial Health Officers of North America. This regulation was published in the May, 1919, Bulletin and became effective immediately. While the method of reporting under the regulation did not vary greatly from the old, yet the changes in report forms were slightly confusing and good results were not immediately apparent. Not only has it been necessary, by frequent check, letters and other reminders to educate physicians and others in the prompt reporting of disease, but constant changes in health officers necessitate the education of every

incoming health officer in his share of the labor of reporting.

It is regrettably announced that out of 101 local and county health officers, from one-third to one-half are delinquent each week in forwarding communicable disease reports. It is realized that the local or county officer may be doing efficient work in local control and yet be lacking in clerical habit. However, the average of promptness in weekly reporting usually typifies the work of the health officer. The local man who is interested in his work keeps in close weekly touch with the State Board of Health. The man who is not interested is usually delinquent. It is remembered, of course, that the work of the health officer is largely dependent upon what his community expects of him and upon the compensation and support given.

While failure on the part of physicians and health officers to make prompt reports constitutes a misdemeanor and is punishable by fine, the division has thus far placed dependence upon educational methods and has instituted no prosecutions. That this policy, except in a few individual instances, is justified is apparent from a study of fatality rates, which indicate a satisfactory response to present methods.

Prevalence of Disease.

Exclusive of influenza, which was of unusual occurrence, and to which reference is made in a later paragraph, there were reported to the State Board of Health in 1918, 5,253 cases of notifiable disease. In 1919 there were reported 6,996 cases and up to November 30th, 1920, 17,670 cases. To those who draw the conclusion that there was an increase in preventable disease from one year to the other, we direct attention to the following table of cases, deaths and fatality rates of seven of the principal communicable diseases which may be taken as an index:

TABLE I.

	1918			1919			1920 (1st 8 mos.)		
	Reported Cases	Deaths	Fatality Rate	Reported Cases	Deaths	Fatality Rate	Reported Cases	Deaths	Fatality Rate
Typhoid Fever	180	53	29.4	275	44	16.0	116	13	11.4
Smallpox	990	6	.6	970	9	.93	794	2	.25
Measles	1,309	18	1.37	807	17	2.1	1,933	14	.72
Scarlet Fever	1,592	71	4.4	1,903	59	3.1	603	17	2.8
Whooping Cough	243	64	26.4	61	14	19.5	339	15	4.4
Diphtheria	280	45	16.2	336	53	14.5	168	23	13.7
Tuberculosis	459	504	.....	609	479	78.6	501	264	52.7
Totals**	5,053	761	15.1	4,991	675	13.5	4,454	348	7.8

*Only eight months mortality statistics completed, hence comparisons for full eleven months are impossible.

**Total number deaths from these diseases in 1917 was 847.

Since mortality data are fairly complete, and since the percentage of deaths to cases in each disease is fairly constant, it may well be concluded that the decline in fatality rates is due to better morbidity reporting and not to any decrease of virulence in the diseases themselves. Furthermore, that there was an actual decline in the prevalence of disease from year to year.

It should be a matter of great satisfaction to the Montana State Board of Health to be able to justify its existence and its expenditures by such a decline in the records of deaths from these diseases.

A more complete study of morbidity with comparative mortality tables will be submitted for later publication.

Supervision of Quarantine Through Health Officers.

Our system of government presumes that each community, in so far as it is able, and in so far as it does not infringe upon the rights of other communities, shall be self-governing. It has been the policy of this division, therefore, to interfere in no way with the work of local or county health departments, except in a few isolated instances where their neglect or action threatened the welfare of citizens or adjoining communities. Every attempt has been made to

respond to special requests by health officers for local assistance in some problem, but on the whole quarantine supervision by the division has been confined to regulatory interpretation and suggestive instructions.

At its last quarterly meeting in 1919, the State Board of Health instructed your Epidemiologist to undertake a revision and correlation of the various quarantine measures and regulations previously enacted by it. This work was completed in March, 1920, and all regulations were re-adopted at the meeting of March, 1920. In making this compilation the latest epidemiology of each disease was carefully studied, and every consideration was given to feasibility of enforcement under Montana conditions. Particular care was given to explicitness regarding care of each disease and every contingency which might arise in quarantine enforcement. It is believed no state regulations combine a greater latitude of liberty to affected individuals with comparative safety to the public than do these, if properly instituted.

Disease Investigations.

A considerable number of requests have come from local and county health officers for aid in diagnosis and suppression of outbreaks of disease. A great many of these involved only a controversy between local physicians or questions as to quarantine enforcement and were solved by long distance methods without unnecessary expense. Wherever such could not be thus met, a response was always given.

A detailed report of each such visit has been filed. Perhaps a relation of one will serve as an example of epidemiological work:

During the first week of assuming the duties of his office, your Epidemiologist observed the reporting of several cases of typhoid fever at Missoula. Immediate inquiry elicited knowledge by various physicians in Granite, Missoula and Ravalli counties of other cases which had not been reported. It was discovered that from January 20th, 1919, to April 10th, 1919, a total of 27 cases with five deaths had occurred in these three counties. Dr. W. I. Power, local health officer at Philipsburg, directed attention to the fact that two cases under his observation had recently visited at a small Hot Springs sanitarium resort in Ravalli county. Investiga-

tion revealed the same history in other cases, and close inquiry of the majority of cases indicated that the infection was confined to those who drank milk or cream at this resort. A visit to the springs excluded the probability of water infection and since the consumption of milk products seemed to be an outstanding feature in the histories given by infected persons, those who handled these products at the hotel or sanitarium came under suspicion. By negative Widal's two of these were excluded. The third, a laborer who did the milking, gave a history of a three weeks' illness with typhoid aspects in February, 1919. No physician was called, the presumption being that the man had influenza. It was evident that he acquired his infection through attendance on a male patient who came to the resort on January 20, 1919, and who later died in Missoula from typhoid fever. The laborer gave marked positive Widal. He readily agreed to come to Helena for laboratory observation and Dr. A. H. McCray, then Bacteriologist for the State Board of Health, was able to isolate cultures of organisms from the patient's feces and urine which agglutinated with *B. Typhosus*. The assumption that this man was a recovering typhoid patient and carrier was confirmed by the opinion of the Director of the Hygienic Laboratory of the U. S. Public Health Service.

The patient was instructed that he must not engage in any occupation involving the handling or preparation of food products and readily agreed to obey such instructions. An observation for over a year indicated his faithful observance of his agreement. After his departure from the resort primary infections from that place ceased. However, eleven secondary cases occurred in Ravalli county as a result of contact with original or primary cases, and three of these died. Altogether there occurred 38 cases and eight deaths, a number of which might have been prevented had the first cases been promptly reported and made early investigation possible.

The following comprises a list of field investigations made:

TABLE II.

Disease.	Place.	Date.
Typhoid Fever	Missoula and Ravalli Counties	April 20, 1919
Spotted Fever	Missoula and Hamilton	May 7, 8, 1919
Smallpox	Marysville	June 25, 1919
Scarlet Fever	Lincoln	July 22, 1919
Typhoid Fever	Phillips	Sept. 18-22, 1919
Scarlet Fever	Kalispell	Sept. 28, 1919
Poliomyelitis	Musselshell	Oct. 22, 1919
Scarlet Fever	Superior	Jan. 2, 1920
Smallpox & Scarlet Fever	Browning	March 26, 1920
Poliomyelitis	Hamilton	Oct. 11, 1920
Paratyphoid	Cascade	Dec. 7, 1920

Disease Control Measures.

(a) **Influenza.** It is generally assumed that the influenza epidemic began in the autumn of 1918. However, a brief retrospect of mortality statistics would indicate that it had manifested its presence, though not distinctly recognized as such, at least a year earlier.

TABLE III.

DEATHS FROM INFLUENZA AND PNEUMONIA BY YEARS.

	Influenza	Pneumonias	Total
1912	17	387	404
1913	30	508	538
1914	22	464	486
1915	41	511	552
1916	58	536	594
1917	43	957	1,000
1918	2,654	1,298	3,952
1919	699	567	1,266
1920*	267	441	708

*First 8 months—subject to slight correction.

It will be observed from the table that the death rate from these diseases from 1912 to 1917 was practically stationary, there being slight increases in the number of deaths proportionate to increases of population. In 1917 there occurred a sharp rise of pneumonia deaths, and most physicians were agreed that the types of these pneumonias varied considerably from the usual. This unusual type prevailed during the early months of 1918. By many physicians it was designated as "interstitial pneumonia," but in general symptomatology corresponded to what was later known as "influenza-pneumonia."

Recognition of **influenza** as such in Montana occurred in the latter days of September, 1918 (Special Bulletin No. 10, Jan. 20, 1919). Within the next three months a total of 37,567 cases were reported. Such reporting was admittedly incomplete and probably did not represent 50 per cent of the actual number. With some abatement during the following two months, a second outbreak occurred in the spring months

of 1919. However, with the return of many physicians and nurses after the armistice, facilities for proper care of patients mitigated the death rate and suffering.

Considering the previous history of influenza epidemics, health authorities generally conceded the probability of another recurrence during the winter of 1919 and 1920. While an increased number of physicians and nurses in the state promised a relief from the exigencies of 1918, it was felt that every emergency should be provided for, in so far as possible.

Accordingly, through co-operation of Dr. E. M. Larsen, President of the Montana State Medical Association, a call was issued to all physicians in the state requesting volunteers for aiding communities not provided with medical service, in event of need. Fifty-one physicians responded to this call. Lack of space forbids mention of their names, but this division acknowledges its gratefulness for the splendid spirit manifested. Fortunately it became unnecessary to call upon but few of them.

Arrangements were also made with the Director of Nursing Service of the Northern Division of the American Red Cross, whereby the Red Cross would attempt to mobilize a nursing corps for emergencies.

During the fall months this division, assisted by the Director of the Hygienic Laboratory, attempted by circular and personal letters to keep in close touch with health officers and physicians, and to be on guard against the appearance of first cases. In view of the general opinion that vaccines had failed to protect individuals against attacks, their use was not urged or encouraged.

In October all health officers were furnished with a plan for community relief organization, and urged to perfect such organization. A few acted upon the suggestion.

By the middle of January, 1920, it was evident that the disease was again epidemic in many communities, though somewhat milder in type. A system of daily telegraphic reports was arranged with the health officers in the larger towns and cities, and with the U. S. Public Health Service.

Miss Margaret Hughes, Field Nursing Director of the Northern Division, A. R. C., reported to the State Board of Health offices and immediately began an organization of

nursing service. She was instrumental in securing the co-operation of volunteers from many Red Cross chapters, and furnished nursing aid to eight communities where conditions were acute.

Twenty thousand pamphlets giving detailed instructions for the care of influenza and pneumonia patients were furnished to stricken families through attending physicians, nurses, health officers and A. R. C. chapters. It became necessary to provide only two communities with physicians, although in several counties more physicians could have been well used.

As will be noted by the table, the toll of lives in 1920 was much less than in preceding outbreaks. A few sporadic cases are being reported during the past few months. It is probable that our pneumonia statistics during the coming winter will prove that the epidemic has not entirely receded. Some communities which have been heretofore comparatively untouched may observe slight recurrences. Mild types of catarrhal infections and "la grippe" will probably prevail in all communities.

Our memories of this and other epidemics should not fail. Let us hope that through preparedness in health organization and in the education of new generations we may prevent a repetition of the terrific losses which influenza has cost in the past three years.

(b) **Tuberculosis.** Montana vital statistics records indicate a gradual reduction in the death rate from this disease. However, the death rate in the state does not compare favorably with those of other northwest states and considerable attention therefore has been given to encouragement of early diagnosis, reporting and care of such cases. It will be observed by Table I that these efforts are producing results.

Through co-operation of the Montana Tuberculosis Association, to whom we express thanks, prophylactic packages of sputum supplies are being furnished free to all patients upon requisition of their attending physicians. Arrangements have also been made with the association whereby physicians are paid a fee of \$1.00 for properly instructing patients in measures necessary to prevent infection of others.

The division also acknowledges splendid co-operation from Dr. C. E. K. Vidal, Superintendent of the State Tuberculosis Sanatorium at Galen. Every effort has been made to assist him in securing a favorable class of patients for treatment.

(c) **Distribution of Antitoxins, Vaccines and Serums.**

Through the universal use of antitoxin the fatality rate from diphtheria is being steadily reduced. Its efficacy increases with prompt and early administration. Often its use is postponed through the financial inability of patients or guardians to afford its cost. Many counties and cities have been willing to furnish the remedy to indigents, but the method of obtaining authorization from the proper officials for its purchase has often been intricate, much delay ensues and each hour of delay in its use jeopardizes chances for recovery of the patient. In addition, counties and cities have been obliged to purchase the antitoxin at prevailing retail prices, a considerable cost. Of course, the druggist, paying usual jobbers' prices could ill afford a reduction.

Believing that a considerable saving might be effected, this division secured the consent of the State Board of Examiners to set aside \$1,000 of its funds for supplying free antitoxins to indigents. Bids were requested from several biological houses, and E. R. Squibb & Sons, New York, offered the lowest. Accordingly, a contract was entered into with them, which contract expires with the appropriation, whereby the State Board of Health is given the benefit of great reduction. (See Table IV).

TABLE IV.
COMPARISON OF PRICES OF BIOLOGICALS

	State Board of Health Prices.	Prevailing Prices Other Houses.
Diphtheria Antitoxin:		
1,000 unit package	\$.75	\$1.00
3,000 unit package	2.00	2.00
5,000 unit package	3.00	3.00
10,000 unit package	5.00	5.00
Typho-Bacterin:		
30 ampule package	3.60	7.50
20 cc vials	1.80	4.60
Smallpox Vaccine:		
5 capillary tubes	.50	1.00
10 capillary tubes	1.00	2.00

Under this arrangement, local distributing stations have been established in almost every county in the state. Local distributors may carry stocks and sell at the retail price

agreed upon in the contract to those able to pay. For those unable to pay, the physician has only to requisition the amount needed from the druggist distributor, certifying that the patient and family are unable to purchase the same. If the druggist is satisfied of the facts in the case, he issues the antitoxin, forwards the requisition to E. R. Squibb, where it is charged to the account of the State Board of Health. A ten per cent commission is allowed the local distributor on these sales.

E. R. Squibb maintains in our offices a large consignment supply of biologicals for shipment to local distributors, thus obviating many long delays in shipment from eastern or Pacific Coast points, and also the necessity for the druggist to carry large stocks with a consequent investment of some capital. Some druggists have refused to handle stocks on the ground that the margin of profit is too small. However, if the druggist adheres to the prices quoted by other houses, the margin of profit is the same, although State Board of Health prices are much lower than prevailing retail prices. The quality of all biologicals is uniform for all are manufactured according to standards set by the U. S. Public Health Service. The present plan is sound and results not only in great economy to those able to pay, but it insures that no person, however poor, need be without the remedy, furnished him with no delay.

Other biologicals distributed under the plan are typho-bacterins, both for treatment and immunization against typhoid fever, smallpox vaccine, anti-meningococcic serum, anti-tetanic serum, anti-pneumococcic serum, and anti-pertussic vaccine. However, with exception of diphtheria antitoxin and typho-bacterins, the State Board of Health furnishes no free biologicals except in most unusual circumstances.

Since the plan was inaugurated, July 1st, 1919, there has been distributed free to indigents the following:

TABLE V.
Diphtheria Antitoxin

35	1,000 unit packages	| 23	5,000 unit packages
22	3,000 unit packages	31	10,000 unit packages

Typho-Bacterins

21	30 ampoule packages	45	20 cc. vials
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Smallpox Vaccine

8	5 Capillary tubes	120	10 capillary tubes
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Anti-Pneumococcic Serum

2	50 cc packages
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The total cost of these products to the State Board of Health was \$397.14. At lowest prevailing retail prices the cost would have been \$947.00, thus effecting a saving to the people of the state of \$549.86. Owing to delay in establishing distributing stations the greater part of these products have been distributed in the past three months.

The number of patients treated by the amount supplied was as follows:

TABLE VI.

Treated for Diphtheria	76
Treated for Pneumonia	2
Immunized against Diphtheria	35
Immunized against Smallpox	1,240
Immunized against Typhoid Fever	570
Total	1,923

The average cost per patient was 20.6 cents.

The number of counties participating in this distribution was sixteen:

TABLE VII.

County	Value of products distributed
Big Horn	\$ 9.00
Blaine	50.10
Cascade*	108.75
Choteau	37.25
Custer	9.75
Dawson	33.75
Fergus	7.05
Gallatin	7.75
Hill	16.55
Lewis & Clark	2.80
Madison	7.80
Missoula	9.00
Phillips	9.85
Pondera	18.00
Powell**	51.00
Yellowstone	7.35

*Two outbreaks of diphtheria at St. Thomas Orphan's Home produced increase.

**Outbreak of smallpox in State Penitentiary necessitated general vaccination of all prisoners.

While some counties received no part of this antitoxin fund, yet it is certain that these counties do not begrudge their contribution to the expense of saving lives in other counties. In fact, by reason either that disease did not exist within their borders or that the financial status of their population did not necessitate calling upon the state for assistance are reasons for self congratulation. Certainly, for the small amount expended, no one measure has resulted in greater direct benefit to those who needed it. This division trusts that its request for a sufficient appropriation to enlarge the field of usefulness of this work may be looked upon favorably.

(d) **Vaccination Campaigns.** Army medical authorities have demonstrated so thoroughly the efficacy of immunization against smallpox and typhoid fever as a preventive of these diseases, that no more convincing proof is required. The same results can be obtained in civilian populations if the application of these preventive measures can be generally applied. Financial conditions in some parts of the state have not permitted large numbers of persons to avail themselves of such protection against these diseases. In order that those who wished might do so, health officers have been encouraged to institute free vaccination campaigns. Wherever such were inaugurated the State Board of Health has furnished free vaccines. Such will account in large measure for expenditures for biologicals listed in the preceding paragraph. It is not possible to mention all health officers who gave their services in these campaigns, but some commendation seems particularly to be due to Drs. Murphy and Bassow of Fort Benton who in 1919 immunized 179 persons in that vicinity against typhoid fever; to Dr. W. L. Kell of Browning who averted outbreaks of typhoid and of smallpox by immunization of 175 persons (mostly school children) against the former, and 133 against the latter disease; and to Dr. G. H. Miller of Harlem who recently has vaccinated approximately 600 persons against smallpox.

If funds permit further efforts will be made along these lines in those communities which seem to suffer annual outbreaks of these diseases, for in many of these education as to immunization is not sufficient. Practical and applied measures must be brought to them.

(e) **Ophthalmia Neonatorum (Infants' Sore Eyes).** A decade ago, 28% of all admissions to blind asylums were traceable to blindness as a result of ophthalmia neonatorum. Through a campaign of education and the widespread use of prophylactic treatments, blindness from this cause has been reduced to 17 per cent.

The well known method of Crede, i. e., the use of silver nitrate in 1 per cent solution, seems to be the prophylactic procedure generally employed and recommended. Failure on the part of obstetricians and midwives to employ it in every case of a new birth is, in these modern times, looked upon

as quite reprehensible. Usually such failures are due to the inability of the obstetrician to obtain a stable and accurate solution in a convenient container.

In order that no practitioner or midwife in Montana need be without such, the State Board of Health has purchased and distributed to each, a one-half ounce amber dropper in protective container, suitable for carrying in the obstetrical bag and convenient for administration of the contained solution. Special instructions and an appeal for its use in every case are sent in each package. These have been found so convenient that many requests have been made for others. A total of one thousand was purchased at a cost of \$205.00. If only one case of blindness is prevented, this expenditure is a splendid investment.

Sanitary Investigations.

(a) **Nuisances.** For the most part nuisance complaints are effectively handled by local and county health officers. Occasionally questions of jurisdiction arise and it becomes necessary for the State Board of Health to offer advice and a decision. The following instance may be cited:

During the winter of 1919-1920 large numbers of livestock in the Blackfeet Reservation succumbed to the rigors of weather and shortage of feed. Dead bodies lay scattered over the watershed supplying the city of Cut Bank with a public water supply, and with the coming of spring threatened to become offensive. Neither local or county officers seemed to possess jurisdiction. After investigation, the matter was referred to the Surgeon General of the U. S. Public Health Service and by him to the Commissioner of Indian Affairs. Orders were immediately issued to the Superintendent of the Reservation to assume responsibility for abatement of this nuisance. While there was some delay on account of legal phases, yet the measures taken seemed to have averted any cause for great complaint.

The following investigations, in response to requests or complaints, have been made by your Epidemiologist:

TABLE VIII.

Nature of Complain	Place	Date
Insanitary City Dump	Eureka	June 5, 1919
Improper School Ventilation	Superior	Nov. 2, 1919
Dead Animals on Watershed	Cut Bank	March 26, 1920
Offensive Barnyard	Clancy	May 17, 1920

(b) **Supervision of School Plans.** State law imposes upon the State Superintendent of Public Instruction and the State Board of Health the duty of inspecting and approving all school house plans before construction. After the war-lull in building operations, the past biennium has witnessed unusual activities in this line. During the past summer a large part of the time of your Epidemiologist, to whom in line with his duties this work was assigned, was given to this work.

A total of 244 plans have been inspected and approved. Of these 215 were new buildings, 15 were additions, and 14 were miscellaneous improvements. Of the first group, 134 were one room schools, 27 two room, 11 three room, 10 four room, and 33 were from five to twenty rooms. Of the second group 7 were one to four rooms and 8 were from five to eleven rooms. In the third group were included 3 heating plants, 5 teacherages, 2 dormitories, 1 vestibule addition, and 1 other improvement.

With no field inspector, it has been impossible to make investigations of building costs or construction efficiency. From the many complaints which are registered it is unquestionably true that a large amount of school funds are annually wasted by inexperienced school boards and lack of construction supervision.

A trained architectural engineer would be of incalculable benefit, by offering to school boards his advice and experience. In addition, he would insure to the school children of the state more ideal sanitary conditions. It has been suggested that such a service might be combined with sanitary engineering work necessitated by supervision of public water supply and sewage disposal plants, and such a plan seems feasible and practicable. It awaits your recommendation.

Disease Prevention Education.

It is generally recognized by health authorities that mere admonition by quarantine regulations is not sufficient to prevent the spread of disease. The public must be taught the results of carelessness, and the nature and means of prevention of disease. Its co-operation must be secured through widespread knowledge.

To this end, under your instruction and with the co-operation and assistance of other division directors, the following educational literature has been edited and published:

TABLE IX.
SPECIAL BULLETINS ON COMMUNICABLE DISEASE.

Influenza and Pneumonia—Care of Patients	20,000
Measles—Care and Prevention	10,000
Ophthalmia Neonatorum (Babies Sore Eyes)	1,000
Pneumonia—The Season's Danger	15,000
Scarlet Fever—Care and Prevention	10,000
Smallpox—Care and Prevention	10,000
Tuberculosis—Plain Facts About	5,000
Tuberculosis—Sanitary Rules for Care of	2,000
Typhoid Fever—Cause and Prevention	10,000
Typhoid Fever—Insurance Against	5,000
Whooping Cough—Care and Prevention	10,000
Other Bulletins	
Farm Water Supplies	10,000
House Fly—Carrier of Disease	10,000
Manual of Instructions for Health Officers	500
Revised Public Health Laws and Regulations	4,500
Necessity of Disease Reporting	20,000
Monthly Bulletins	
April 1919	2,500
May 1919	2,500
June-July 1919	2,500
August 1919	2,500
September-October 1919	2,500
November 1919	3,000
December 1919	3,000
January 1920	3,000
February-March 1920	3,000
April-May 1920	3,000
June-July-August 1920	3,000
September-October 1920	3,000
Other Literature	
Warning against Negative Sputum Specimens (A slip)	2,000
Diagnosis of Tuberculosis by Sputum Findings (A slip)	2,000
Why Don't You Use Your Hankie (Book Mark for School Children)	25,000
Total	225,500

Every effort has been made to insure distribution of this literature through physicians, health officers, nurses, teachers and other interested agencies. To those who are not familiar with the value of printers' ink, and who may doubt the wisdom of expenditures for this material, it may be said that a piece of literature placed in the hands of an interested person is much more economical than the traveling expenses of lecturers and inspectors. Conceding even that some of it is not read, it may be calculated that if only one in ten who receive it subject it to careful reading and study, the results justify the expense.

We must continue to rely upon this material for our principal educational factor and it is sincerely trusted that we shall not be handicapped by lack of sufficient printing funds.

(b) **Slides and Films.** Visual impressions emphasize the printed page and the lecture. Especially is this true of the young. For the benefit of those engaged in educational work, such as health officers, public health nurses, physicians, teachers or others, lantern slides have been secured and lectures have been or are being prepared on the following subjects:

TABLE X.

School Hygiene	Fly Menace
Oral Hygiene	Tuberculosis—Its Cure and Prevention
Infant Hygiene	Conservation of Vision
Prevention of Typhoid Fever	

These are loaned to those parties who wish to use them without charge, except that of transportation expense.

There has also been secured a health movie film entitled "The Priceless Gift of Health," which emphasizes the importance of physical examination from babyhood to adult life.

We have also had the co-operation of the Montana Tuberculosis Association in the preparation and distribution of literature pertaining to the prevention of tuberculosis and in the circularization of another movie film entitled "The Public Health Nurse," an exemplification of what the nurse is able to do for the community.

(c) **Public Health Talks and Lectures.** In common with other division directors, your Epidemiologist has made an effort to respond to every invitation to give public talks or lectures to interested groups. The following list of occasions presented:

TABLE XI.

Kalispell	Child Welfare Association	June 5, 1919
Somers	Child Welfare Association	June 6, 1919
Polson	Child Welfare Association	June 7, 1919
Lewistown	State Bar Association	Aug. 26, 1919
Helena	State Teachers Association	Nov. 24, 1919
Bozeman	Young Men's Vocational Conference	Jan. 14, 1920
Billings	County Medical Society	Mar. 1, 1920
Bozeman	County Medical Society	May 1, 1920
Dillon	State Normal	June 15, 1920
Kalispell	Rotary Club	Sept. 27, 1920
Helena	Wesleyan College	Dec. 9, 1920

(d) **Special Campaigns.** At the Atlantic City meeting of International Rotary a resolution was adopted urging that Rotary Clubs all over the world devote at least one of their weekly meetings to a discussion of a health topic. The thought naturally occurred that if this resolution was acted upon some outline of a program should be prepared. Accord-

ingly such a plan was drawn for presentation to the district meeting of Montana Rotary Clubs held in Helena September 13, 1920. The same idea had occurred to members of Butte Rotary and Commercial Clubs and with their co-operation a general call was issued to all Rotary and Commercial Clubs in the state urging them to send representatives to a program conference to be held in Helena October 20th.

At this meeting a general program covering a full week of activity, and in which every community agency was urged to participate, was outlined. The week of December 5th to 11th was set for observance and His Excellency, Governor S. V. Stewart, dignified the movement by the issuance of a proclamation designating it as Health Week.

The preparation of detailed programs for each agency, of lessons for use in schools, of four minute speeches, and of questionnaires, advertising and statistical data, was left to the State Board of Health. Your Epidemiologist expresses his appreciation of the assistance given in this work by every member of other divisions, and by the Secretary of the State Tuberculosis Association.

The success of the program exceeded all expectations. Led by commercial and business interests, programs were inaugurated in practically every large city of the state, and in a large number of rural districts, every social agency participating. The newspapers of the state gave much publicity to discussions of health topics and were especially helpful in promoting the cause. Montana has received paluable advertising all over the United States as a pioneer in this movement.

The campaign is too recent to estimate results but it is sincerely trusted that it may become an annual event.

Other Duties.

(a) **Vital Statistics.** As an assistant to the Secretary your Epidemiologist has also acted as assistant state registrar of vital statistics and has performed a considerable duty in the supervision of details of correspondence and tabulation of data.

(b) **Miscellaneous.** Also as assistant to the Secretary considerable time has been given to assistance in the preparation and arrangement of programs for two meetings of the Montana Public Health Association, held at Missoula and Helena.

In an advisory capacity the following visits have been made to conferences with county and city officials relating to improvement in health organization:

TABLE XII.

Place	Official Business.	Date.
Bozeman	With County Commissioners	April 14, 1919
Great Falls	With County and City Commissioners	July 17, 1919
Great Falls	With County and City Commissioners	Sept. 2, 1919
Lewistown	With County and City Commissioners	Oct. 20, 1919
Crow Agency	With County Commissioners	Nov. 6, 1919
Browning	With City Commissioners	March 27, 1919
Great Falls	With County Commissioners	Aug. 4, 1920
Great Falls	With City Commissioners	Aug. 9-12, 1920

Visits for other purposes have been made as follows:

TABLE XIII.

Place	Purpose of Attendance	Date
Missoula	Montana Health Association	July 7-10, 1919
Glacier Park	Northwest Dist. Nurses Conference	July 14-16, 1919
Butte	State Conference American Red Cross	Sept. 25, 1919
Sand Coulee	Investigation Vital Statistics Violation	Aug. 5, 1920
Circle	County Fair Infant Welfare Clinic	Sept. 11-15, 1920
Great Falls	Meeting with Direc. North. Div. A. R. C.	Nov. 7, 1920
Billings	Meeting Crippled Children Clinic Committee	Dec. 17, 1920

Advantage has been taken of every opportunity to meet and confer with local and county health officers, in order to secure a better mutual understanding of local problems, and if possible to secure improvement of co-operation and methods. In addition to visits made specifically for other purposes the following places have been visited:

TABLE XIV.

Place.	Date
Butte	Dec. 19-20, 1919
Shelby	March 26, 1920
Cut Bank	March 26, 1920
Browning	March 27, 1920
Whitehall	June 14, 1920
Dillon	June 15, 1920
Anaconda	Sept. 23-24, 1920
Phillipsburg	Sept. 24, 1920
Kalispell	Sept. 27, 1920
St. Ignatius	Oct. 4, 1920
Polson	Oct. 4, 1920
Billings	Dec. 17, 1920

Office Activities.

In the conduct of office work, this division has been supplied constantly with one clerk and stenographer, and for about eight months of the period with a second stenographer.

Unfortunately no record of office correspondence was kept from April 10th to June 7th, 1919, but since that time the division has issued 4,649 personally dictated letters.

In addition there have been issued circular mimeograph letters to health officers, physicians, editors, county superintendents and others, as follows:

TABLE XV.

Separate issues	34	Number individuals receiving such	6,406
Number of pages	66	Total number imprints	19,900

No records have been kept of mimeo forms for office use.

With the installation of new morbidity report regulations and new methods of office recording it has been necessary to devise and have printed the following cards and office records:

TABLE XVI.

Cards for Use of Physicians and Health Officers	
Communicable Disease Report Cards	65,000
Weekly "No Report" Cards for Health Officers	4,000
Monthly Summary Cards for Health Officers	1,000
Typhoid Investigation Cards for Health Officers	2,000
Imported Infection Cards for Health Officers	2,000
List of Reportable Disease Cards for Physicians	1,000
Requisition Cards for Tuberculosis Prophylactic Supplies	2,000
Tuberculosis History Sheets	1,000
Office Supplies	
Communicable Disease Record Blanks	1,000
Weekly Disease Report Blanks (3 sheets)	1,000
Tuberculosis Case Index Cards	1,000
Tuberculosis Case History Envelopes	1,000
Tuberculosis County and City Record	1,000
Letterheads for mimeograph	5,000
Total	88,000

Conclusion.

This division wishes to thank some 650 physicians in the state who have co-operated in the reporting and isolation of communicable disease. It is also under obligations to some 101 local and county health officers who have given loyal support to all public health measures in their respective communities. Many of these are sadly underpaid and are earning many times the small salaries paid them. Public health authorities look forward to the time when every community of any size will see the wisdom of the "whole time health officer"—the trained man who will not be permitted to engage in any other work than the promotion of public health, and who will be paid in full for services rendered.

Your Epidemiologist also expresses to yourself, the members of the State Board of Health and directors of other divisions of the department, his appreciation of the support given him in all activities of his work during the past two years. It is a pleasure to work in an organization characterized by cordiality, loyalty and friendly co-operation.

The budget of this division for the ensuing biennium is presented to the legislature in the full faith that Montana people fully realize that public health is a purchasable commodity and that the record of the State Board of Health in the past fully justifies continued support in the future.

Respectfully submitted,

JOHN J. SIPPY, M. D.,
Epidemiologist.

Summary.

1. The position of State Epidemiologist was created by legislative enactment of March 3rd, 1919, thereby making possible a separate Division of Communicable Disease in the Montana State Board of Health.

2. The division is able to report improvement in the prompt reporting of disease, and a steady annual decline in the deaths from communicable diseases.

3. Complete revision of all State Board of Health regulations was made and compiled in a new publication in 1920.

4. Eleven special disease investigations have been made.

5. The recrudescence of influenza in 1920 was much less severe than in previous years. Special relief organizations and measures were arranged for.

6. Tuberculosis continues to decline, but does not yet compare favorably with other states of the northwest. Cooperation of the Montana State Tuberculosis Association has been of material assistance.

7. Arrangements for the free distribution of antitoxins, vaccines and serums to the indigent at State Board of Health expense has been of great aid in the control of diphtheria, typhoid fever and smallpox. A total of 1,923 persons have been served at an average cost of 20.6c each. A large saving in the cost of these products has been effected to the people of the state generally.

8. Free vaccination campaigns against smallpox and typhoid fever have been conducted by several health officers with splendid results.

9. A special campaign for the prevention of blindness as a result of ophthalmia neonatorum (babies' sore eyes) has been conducted through the distribution of free prophylactic packages to physicians and midwives.

10. Four special sanitary inspections have been made.

11. A total of 244 school house plans have been inspected and approved. The need of an architectural and sanitary engineer for inspecting plans of public buildings, public water supplies and sewage disposal plants is apparent and would result in more economical expenditure of public funds.

12. The educational work of the division has included the preparation and distribution of literature, of seven slide lectures and one movie film, and the giving of eleven public lectures.

13. A special Health Week campaign has been carried on in co-operation with Rotary and Commercial Clubs of the principal cities of the state with most excellent results.

14. The Epidemiologist also assisted in the compilation of vital statistics, in arrangements of special health programs and meetings, in eight special conferences with county and city commissioners relative to local and county health organizations, and has attended seven special meetings at the direction of the Secretary.

15. Twelve special visits and conferences have been held with health officers in inspection of records and with a view to improvement of efficiency of health work in their respective communities.

16. A large volume of office correspondence has been performed and considerable revision has been made in division office system.

FOOD AND DRUG DIVISION.

During the past two years considerable progress has been made in food and drug law enforcement work. Investigations have been made in several lines and it has been the aim of this division to thoroughly cover the projects undertaken. The principal subjects will be considered under special headings.

Sanitary Inspection Work.

Three thousand two hundred thirty-one inspections were made by the Director of the Division of Food and Drugs and by inspectors during the past two years. Owing to inadequate appropriation it has only been possible to have an inspector during a short period of each summer. Mr. W. C. Hansen and Mr. L. C. Humphrey, graduates of the Department of Chemistry, Montana State College, were employed for short periods of time as inspectors for the division. Mr. Hansen served approximately four months and Mr. Humphrey about six weeks, during the summers of 1919 and 1920, respectively. This means that with the exception of five and a half months during the past two years the director of the division has been the only state officer devoting full time to food and drug law enforcement work. It is contended that the importance of the work merits increased appropriation, and that at least two full-time inspectors should be provided in addition to the director of the division. The city of Butte has had in the past, five inspectors looking after the same class of work for which the State of Montana has provided one.

Practically every section of the state was visited twice during the past two years as a matter of routine inspection work, and many special inspections were made as the occasion required. Practically all official food and drug samples sent to the State Board of Health Food and Drug Laboratory for examination were purchased by representatives of this division. The frequency with which many communities change health officers makes it impossible to trust this class of work to local officers. By the time an officer is familiar with the proper procedure in the taking of samples, he is removed from office and it becomes necessary to start all over again with instructions in the food and drug law enforcement work. Until more substantial support is given the work by various

communities, this condition will remain the same. With no regular local inspection, and it is a fact that by far the greater part of Montana has none, and only one annual visit from a state inspector, it is not expected that this generation will even become unfamiliar with such relics of pioneer days as the roller towel and common drinking cup.

During the past year the city of Helena was shocked to learn that the slaughter houses supplying its meat were being and had been operated in an insanitary condition. There are many communities no better off than Helena was. Local inspection in the majority of cases is inadequate and inefficient. This condition produces in the public mind a false sense of security. It assumes that "someone" is looking after sanitary inspection work and it is high time that the public should know that that "someone" in the greater part of Montana is Divine Providence alone. The only thing to prevent a meat dealer from slaughtering and selling meat from a lumpy jaw or tubercular cow is his conscience, and that restraining force is not always sufficient.

Due credit is given those local officers who have faithfully performed their duties as food and sanitary inspectors. Many officers have taken a great personal interest in this phase of health work and have vigorously enforced sanitary measures, even at the expense oftentimes of incurring the enmity of prominent citizens of their communities. It is characteristic of human nature that the average citizen is in favor of the thorough enforcement of health laws until such enforcement affects his pocketbook, then he will bitterly assail the work and attack and abuse the name and reputation of the health officer, even though the measure concerned is intended to promote the health and general welfare of the community. It requires a rare courage on the part of a health officer to impartially enforce all health measures when he is dependent upon the good will of the citizens of his district for a living.

Table No. I on page 88 shows the number of sanitary inspection reports which have been received from county and city health officers during the past biennial period. If citizens of the state are in favor of improving the sanitary conditions of their communities they should encourage and support their health officers in faithfully performing the

duties of their office. If a reasonable amount of work has not been done, taxpayers should inquire why it has been neglected. Unless public sentiment in a given community is behind health measures it is not likely that any progress will be made in that locality.

Public Eating Places.

Public eating places on the whole are rapidly improving. Competition and inspection are believed to be responsible and credit should quite likely be given to the causes in the order named. In the smaller towns it is still a common practice to throw slops out of the back door for the reason that it is the easiest way known to get rid of waste material. From an inspector's standpoint, the most common complaint against public eating places is that refrigeration for perishable foods is either not provided or else not efficient. Exposure of foods to heat and foreign odors, and the use of cheap materials, likely accounts for that "restaurant taste" that causes many a man to take a chance on matrimony and home cooking.

Under the present law the State Board of Health is obliged to issue a license to any party on application for the same. The law should be amended in this respect and should require that parties desiring a state license should first show that they have quarters which can be maintained in a sanitary condition, and that it will be possible to operate such a place within a reasonable degree of the regulations of the State Board of Health. Licenses should be issued only upon applications which have been approved by local health officers. This procedure will not involve any additional expense in licensing but will save the state and counties the expense at present incurred in prosecuting and closing up insanitary places. It is obvious that the state should not be obliged to license a man to run a restaurant in a building that is suitable only as a refuge for cockroaches and other vermin. In the interests of economy to taxpayers a reform is demanded in the system of licensing public places.

Meat Markets and Slaughter Houses.

Meat markets in general are in a satisfactory condition. The public has been quick to recognize and patronize clean markets. Meat and meat products in markets are cared for

in a more satisfactory manner than at any previous time, although some dealers are inclined to display too large quantities of fresh meat exposed to the air. It will be noted from the chemist's report on meat products that the use of illegal preservatives has practically been discontinued in Montana, and it may here be noted that about seventeen hundred dollars in fines have been collected since the passage of the Food and Drug Act, to bring about this condition.

Inspection of slaughter houses has been neglected, and this fact, coupled with the fact that such places are seldom seen by consumers, has resulted in some slaughter houses getting into an insanitary condition that defies description. The American people are at present greatly concerned over the meat business getting into the hands of a few big packers. Few people realize that one of the factors which has contributed to this condition is the fact that the public demands reasonable assurance that the foodstuff which they purchase has been handled and prepared under sanitary conditions, but nevertheless, such is the case. It is a strange state of affairs when people living in the heart of a cattle country must pay freight several hundred miles on fresh meats in order that they may be reasonably assured that the article is wholesome in nature. The establishment of municipal abattoirs by some of the larger Montana cities might be an experiment well worth while trying. By this is meant a place where licensed meat dealers might slaughter stock under sanitary conditions, with ante-mortem and post-mortem inspections to be made by a qualified veterinarian. With the exception of two packing plants in Montana having federal inspection, there is no attempt made at any regular system of meat inspection in the state.

Confectioneries and Bakeries.

Manufacturing confectioneries and bakeries in the state have shown great improvement during the past two years. They are at present turning out high class products free from adulteration and misbranding. Manufacturers have shown a desire to comply with rules and regulations of the State Board of Health, and have in a great many instances asked for suggestions as to how they might further improve conditions. There are a few manufacturing bakers and confectioners in the state that have work rooms located in base-

ments. It is practically impossible to properly ventilate and light a basement, and a law should be passed or regulations should be adopted prohibiting any manufacturing baker or confectioner from locating in a basement, and those bakeries and confectioneries at present in basements should be given a reasonable length of time, say one year, to move into quarters properly ventilated and lighted and above ground.

Regulations of the State Board of Health prohibit the open display of unwrapped confectionery or bakery goods for the reason that they are consumed without any further treatment which would render harmless any germs of contamination. Attention is called to the fact that practically all bakers and confectioners have provided enclosed dirt, dust and fly-proof windows for the display of unwrapped goods. If an exception is found it is usually a case of ignorance. There exists a difference of opinion among bakers as to whether or not the cost of wrapping bread is justified. No regulation has been adopted on this subject. The matter is left to the discretion of the bakers. The cost of wrapping is about one cent per loaf. If bread is unwrapped, it must be handled and transported in a manner that will prevent it from becoming contaminated by dirt, dust and other extraneous matter.

Grocery Stores.

If Rip Van Winkle were to arrive in a Montana town or city today after a twenty year vacation, he would have difficulty in locating a grocery. They have undergone as great a change as that of the old apothecary shop to the modern pharmacy. The majority of foods formerly sold in bulk form are now sold in sealed package form, and for those that remain in bulk form, dust, fly, rat and cat proof compartments have been provided in neat and attractive designs. The Federal Food and Drugs Act has eliminated adulterated and misbranded foods from interstate commerce and it is necessary only for state and local officers to look after the wholesomeness of interstate foods not sold in the original containers, and foods produced and consumed within the state.

Ice Cream Parlors and Soda Fountains.

Ice cream and soft drink establishments are improving in cleanliness, particularly since the adoption by the State Board of Health of regulations prescribing the proper manner of cleansing utensils. There remain a few places not having running water and it may be estimated that less than fifty per cent have running hot water, which is practically indispensable in the proper cleansing of dishes, silverware and glassware. Every establishment preparing, handling or serving foodstuff is morally obliged to exercise reasonable care at all times to insure the wholesomeness of the article. The old method of rinsing dishes in a pail of dirty, cold water, and serving the next customer, using such a dish, cannot be too severely condemned. One does not like to think of drinking from a receptacle used in serving a tubercular patron under such conditions.

It has been aimed to encourage the use of individual paper receptacles for the serving of ice cream and soft drinks. They at least should be used in establishments where proper provision has not been made for sterilizing utensils.

Hotels.

An annual inspection by local health officers is required of all hotels, which inspection must be made as soon as possible after January 1st of each year, or immediately, in the case of hotels that may be opened throughout the year. The legislature of 1919 passed a hotel law but failed to make any appropriation for its enforcement, so that the condition of hotels remains about the same as during the previous biennial period. Inspection work, like everything else nowadays, costs money. A license fee system might easily be provided and the fees used to defray the expenses of hotel inspection. A two dollar license fee on all hotels and rooming houses would bring in not less than three thousand dollars, which would provide for the salary and traveling expenses of a hotel inspector.

It is not believed that climatic conditions in Montana are particularly conducive to the health or longevity of bed-bugs, yet many complaints are received from travelers each year stating that their slumbers have been disturbed by such vermin. Poor ventilation, insanitary toilets, soiled linen, and

insufficient air space in rooms are further causes of complaint. Owing to the high price of building material and the cost of labor during the past two years, very few hotels or rooming houses have been erected. There has been increased travel and consequently there has been increased demand for hotel rooms. Each succeeding summer brings an increased number of tourists to the state, and if Montana is to realize a desirable reputation throughout the country for good hotels, more attention must be given to the regulation and control of such places through efficient inspection.

Special Investigations.

As a result of prohibition there has been a great increase in the number of so-called soft drinks offered for sale. Many near beers have made their appearance and also substitutes for every other intoxicating drink that has ever been made since the hilarious effect of alcohol was discovered. This department is concerned only with the branding and the wholesomeness of the ingredients used, and many samples have been examined of such preparations to determine whether or not they were adulterated or misbranded within the meaning of the Food and Drug Act.

Bottling Plants.

There are at present about thirty bottling works in the state. Special regulations for such plants were adopted by the State Board of Health under date of May 29th, 1919. Inspections have been made of practically all plants, and chemical and bacteriological examinations have been made of all bottled soda waters produced in the state. Three plants were found to be using saccharin as a substitute sweetener for sugar. These plants made the excuse that they were forced to use this chemical as a substitute for sugar or else close down during the sugar shortage. The practice of using saccharin to sweeten foods constitutes a fraud and a humbug, and a law should be passed prohibiting the use of this chemical in any article of food or drink. It has no food value and it has been demonstrated that consuming excessive amounts of it will result in serious digestive disturbances. It should be remembered that children are the greatest consumers of bottled sodas, and furthermore there are at least a score of foods or food products in which it is possible to

use saccharin. No reasonable argument has ever been advanced for the use of saccharin. It has contributed to the wealth of greedy, unscrupulous manufacturers, but it never has and never will contribute to the healthfulness and wholesomeness of any food product. Montana bottlers have condemned the use of saccharin and have shown a desire to co-operate with the State Board of Health in improving the quality of bottled soft drinks produced and sold in the state. Bacteriologists and chemists employed by the State Board of Health have been and will be able to materially assist bottlers of the state in turning out better products as a result of the experiments and investigations which have been carried out in our laboratories. A list of bottled soda waters examined will be found under the chemist's report.

Co-operative Work with the Bureau of Chemistry.

There has been considerable increase in the number of food samples that have been taken for the Bureau of Chemistry. During the past two years four different federal inspectors have visited the state and a system of co-operation has been established whereby it is possible to keep a thorough check upon all foodstuffs entering the state with a minimum amount of expense. Were it not for the efficient enforcement of the Federal Food and Drugs Act by the Bureau of Chemistry, the work of this division would at least be tripled. The manner in which shipments of ripe olives which were of a suspicious character were traced down in the state during the past two years may be cited as an example of the advantages of the co-operation between federal and state offices. A number of deaths were caused throughout the United States as a result of persons eating ripe olives which were contaminated with a bacillus botulinus. In each instance the lot shipment represented by the poisonous article was located and sale was prohibited, and the article was either destroyed or returned to the packers for reprocessing. About twenty-five shipments were traced down and sale prohibited in this state as a result of information furnished this division by the Bureau of Chemistry. Packers and state health officers have determined that sterilization of olives or olive preparations will be accomplished if the article is subjected to a temperature of 240° F. for a period of 40 minutes. Packers are obliged to sterilize olives under those con-

ditions and the public therefore need have no hesitancy in eating olives or olive preparations that may hereafter be offered for sale in the state.

Foods, Adulterated and Misbranded.

Only a few adulterated and misbranded food products are to be found. Those that are found are usually the result of greed, or ignorance of the provisions of the Food and Drug Act. This Act has stood the test of time and unscrupulous dealers have gone to other lines in order to practice fraud and deception.

The few instances of adulterated and misbranded foods found is the best evidence that can be presented of the effectiveness of the Food and Drug Law in protecting the public.

Adulterated Lard.

During the last biennial period a number of samples of lard were purchased throughout the state. In many instances it was found that beef fat was present. Improved chemical methods enable the chemist to detect the presence of beef fat, even though it is present in very small amounts. A number of prosecutions have been made and no doubt further proceedings will be necessary in order to discourage certain dealers from substituting cheap fats for hog fat. For detailed report of the number of adulterated samples found, see chemist's report.

Oysters.

Since fresh oysters were first sold in the state it has been a common practice to add water or water in the form of ice to the article before selling. It is obvious that this resulted in considerable gain to retail dealers from the sale of water. When it is considered that four gallons of fresh oysters will absorb one gallon of fresh water without any appreciable difference at the end of a few hours between the original and the watered article, it will be seen that the services of a chemist are necessary in order to protect the public from fraud, and the saving made in a year to consumers on this article alone will more than equal the total annual appropriation made for food and drug law enforcement in Montana.

Prosecutions.

It has not been the aim of this division to pile up a great number of prosecutions. It is not believed that a great list of convictions is any indication of the effectiveness or usefulness of such a department. It has been the aim to aid and encourage every line of legitimate business with which we are obliged to deal in food and drug law enforcement. Prosecution has been resorted to only in those cases where parties have disregarded warnings and where it was evident that there was no intent on the part of such parties to comply within a reasonable degree with the state law or rules and regulations of the State Board of Health. In those cases wherein complaints have been filed, we have used every available legal means to secure convictions. It is a matter of record that of the great number of prosecutions brought by this department, but one case has been dismissed with our consent, and in that instance additional evidence was secured after the complaint had been filed which raised considerable doubt as to the guilt of the party. In food law administration the interests of the public are of paramount importance, but dealers are given the benefit of the doubt.

In the majority of cases county attorneys have acted promptly after complaints have been filed, and have endeavored to secure convictions. In a few instances, and presumably where political friends of the prosecuting attorney have been concerned, assistance has been negative rather than positive. State officers will bear witness to the fact that if a county attorney does not desire a conviction, one is not likely to be had.

Valuable assistance has been given this division by the attorney general's office. Many food and drug cases become technical in nature, and for this reason it would be advantageous to have a member of the attorney general's office act as a prosecuting attorney. It is unfortunate that state cases of this nature can be filed only in a justice court and since they involve criminal action no appeal can be had in case the justice court decides against the state.

The following table shows the cases which have been instituted during the past two years and their disposition:

Dealer.	Residence	Offense.	Disposition of Case.
Peter Lazetich	Anaconda	Adul. Hamburger	Fined \$25
W. M. Montgomery	Anaconda	Adul. Pork Sausage	Fined \$25
Sladich & Pozega	Anaconda	Adul. Hamburger	Fined \$25
Washhoe Market	Anaconda	Adul. Hamburger	Fined \$25
Boone & Manlove	Anaconda	Adul. Hamburger	Fined \$25
Bolkova & Kordich	Anaconda	Adul. Hamburger	Fined \$25
Laurel Meat Co.	Laurel	Adul. Pork Sausage	No action
C. J. Wagenbreth	Miles City	Adulterated Oysters	Fined \$25
C. J. Wagenbreth	Miles City	Adul. Hamburger	Fined \$25
Wm. F. Jacobs	Harlowton	Adul. Hamburger	Fined \$30
Wheatland Meat Co.	Harlowton	Adulterated Oysters	Fined \$30
E. J. Neff	Terry	Adul. Hamburger	Fined \$25
E. J. Neff	Terry	Adulterated Lard	Fined \$25
Edgar Meat Co.	Billings	Adulterated Oysters	No action
Northwestern Pkg. Co.	Helena	Adulterated Lard	Found guilty, case appealed
P. J. Johannesen	Deer Lodge	Adul. Hamburger	Fined \$25
Sladich & Pozega	Anaconda	Adulterated Lard	No report
Gorsich Bros.	East Helena	Adul. Lard, 2 counts	Fined \$50
John Yuhas	Miles City	Adulterated Lard	No report
Charles Mallender	Billings	Adulterated Lard	No report
Grady's E. Side Mkt.	Helena	Adulterated Lard	Fined \$25
Palace Meat Mkt.	Great Falls	Adulterated Lard	Case dismissed Sept. 3, 1919, by Judge Earl
George Bartz	Bozeman	Adulterated Oysters	Fined \$25
John Bader	Bozeman	Adulterated Lard	Found not guilty
J. T. Kotaki, C. Cafe ..	Glasgow	Open Display of Pas- try goods	No action
R. M. Cosgrove	Dillon	Adulterated Ham- burger, 2 samples	Fined \$25
T. J. Thompson and E. E. Leach	Valier	For failure to comply with order for re- moval of hog yard	Case dismissed when correction was obtained
John Boyle, Booth No. 18, City Mkt.	Butte	Adul. Hamburger	Case not prosecut- ed owing to the fact that W. C. Hansen, inspect- or taking sample, had left state
Joe Zemanek and John Nigro	Red Lodge	Sale of meat from carcass of a di- seased cow	Fined \$25 each
B. B. Baker	Neihart	Insanitary toilet	Fined \$10 & costs
Harry Thompson	Butte	Adul. Hamburger	Found not guilty by jury
John Deering	Bozeman	Sale of tubercular tur- keys	Settled out of court by parties con- cerned
Adolph Iten	Livingston	Adulterated Lard	No action
McCarthy's Nat. Mkt.	Butte	Adulterated Lard	Found not guilty by jury
Red Lodge Meat Co.	Red Lodge	Adulterated Lard	Fined \$50
Albert Reese	Bridger	Adulterated Lard	Fined \$25
Joe Castagna	Red Lodge	Adul. Hamburger	Fined \$25
Robert Kaufman	White Sul- phur Sprgs.	Adulterated Lard	No report
Miles City Market	Miles City	Adul. Hamburger	Fined \$25
Northwestern Bottling Works	Butte	Saccharin in soda water	Found not guilty by judge
Keenan Mfg. Co.	Butte	Saccharin in soda water	Case not tried
Blue Rock Prod. Co.	Fairview	Saccharin in soda water	Fined \$25
George Lyman	Helena	Insan. slaughter-house	Fined \$50
Larson Bros.	Helena	Insan. slaughter house	Fined \$25
Rudolph Cvar	East Helena	Insan. slaughter house	Fined \$50
Arthur Trutneau	Helena	Insan. slaughter house	Fined \$25

TABLE NO. I.
SANITARY INSPECTIONS.

	1919	1920	Total		1919	1920	Total
Beaverhead	0	0	0	Jefferson	0	0	0
Lima	0	0	0	Whitehall	52	36	88
Big Horn	0	0	0	Lewis & Clark	0	4	4
Hardin	0	0	0	Helena	44	34	78
Blaine	0	42	42	Liberty			
Chinook	0	144	144	and		79	121
Harlem	34	31	65	Chester	42		
Broadwater	0	2	2	Lincoln	0	0	0
Carbon	372	578	950	Eureka	0	2	2
Bridger	78	94	172	Libby	202	186	388
Fromberg	81	60	141	Troy	73	0	73
Joliet	0	0	0	Madison, and Vir-			
Red Lodge	65	12	77	ginia City	88	133	221
Carter	0	0	0	Pony	38	106	144
Cascade	35	4	39	Sheridan	15	0	15
Belt	0	0	0	Twin Bridges	0	4	4
Great Falls	333	345	678	McCone	0	0	0
Neihart	0	0	0	Meagher	43	39	82
Chouteau	123	79	202	Mineral	0	0	0
Big Sandy	0	6	6	Missoula	199		
Fort Benton	0	0	0	and		1,141	2,317
Geraldine	86	85	171	Missoula City	977		
Custer	0	9	9	Musselshell	28	98	126
Daniels		16	16	Roundup	0	51	51
Scobey	0	0	0	Park County and			
Dawson	102	126	228	Livingston	845	848	1,693
Deer Lodge	15	0	15	Phillips	33	17	50
Anaconda	0	0	0	Malta	0	0	0
Fallon	10	0	10	Pondera	0	36	36
Fergus	0	4	4	Conrad	0	21	21
Denton	0	2	2	Powder River	5	7	12
Lewistown	0	13	13	Powell	0	0	0
Moore	0	0	0	Prairie	0	0	0
Stanford	0	0	0	Ravalli	0	0	0
Flathead	112	112	224	Hamilton	0	8	8
Columbia Falls	5	8	13	Stevensville	0	0	0
Kalispell	14	32	46	Roosevelt	167	131	298
Polson	0	8	8	Poplar	0	0	0
Whitefish	61	42	103	Wolf Point	0	0	0
Garfield	0	1	1	Richland	0	0	0
Gallatin		146		Lambert	0	0	0
and	163		512	Rosebud	0		
Bozeman		203		and		15	15
Three Forks	0	6	6	Forsyth	0		
Glacier	12	4	16	Sanders	193	165	358
Cut Bank	0	0	0	Plains	50	43	93
Granite	37	23	60	Thompson Falls	0	0	0
Philpsburg	119	115	234	Sheridan	124	208	332
Hill	27	0	27				
Havre	0	17	17				
Hingham	7	0	7				

SANITARY INSPECTORS.—(Continued.)

	1919	1920	Total		1919	1920	Total
Silver Bow	703	598	1,301	Valley	73	0	73
Butte	1,761	2,038	3,799	Wheatland	355	352	707
Walkerville	57	69	126	Judith Gap	0	3	3
Stillwater	23	4	27	Wibaux	0	0	0
Park City	0	0	0	Yellowstone and			
Sweet Grass	0	0	0	Billings	988	873	1,861
Teton	30	0	30	Laurel	76	76	152
Choteau	0	0	0	Division of Food			
Toole	0	0	0	and Drugs	1,688	1,543	3,231
Shelby	0	0	0	Totals	10,863	11,338	22,201
Sweet Grass	0	0	0				
Treasure	0	1	1				

Note: Figures in 1920 column indicate only inspection reports for the first eleven months, or to December 1st of the year.

REPORT OF FOOD AND DRUG LABORATORY.

W. M. Cobleigh, Chemist and Laboratory Director.

R. C. Sherwood, Analyst in Charge of the Laboratory.

One thousand one hundred and seventy-three samples were analyzed and reported to the director of the division during the biennial period ending November 30th, 1920.

A general summary of the work follows:

Of the samples examined, by far the majority were purchased and submitted by inspectors of the Division of Food and Drugs. The list includes also dairy products received for analysis from the Montana State Dairy Commission, and articles submitted by private citizens throughout the state for examination as to purity, for identification, for analysis for poisons, and other similar reasons.

Of the total number of samples, two hundred and thirteen, or eighteen per cent, failed to conform to food and drug regulations in one or more particulars. This percentage does not indicate the percentage of adulterated or misbranded products on the market, because inspectors take up only those articles which they suspect to be violations of the law.

Adulterated articles may be roughly divided into two classes: first, those which contain injurious or poisonous substances; second, those which contain substances which reduce or impair the quality of the product but are not harmful in their action. The first class affects the health of the consumer, the second, his pocketbook. It is pleasing to note that most of the adulterations were of the second class. A large number of misbrandings were found, and a few cases of spoilage.

Thirty-seven articles were submitted with requests for analysis for poison in suspected poison cases. The results of laboratory tests showed poison in twelve cases. Strychnine was found in seven samples, methyl alcohol in four and fusel oil in one.

GENERAL SUMMARY OF SAMPLES ANALYZED.

Articles	Total Samples	Samples Not Passed
Acetylsalicylic Acid	3	.....
Baking Powder	1	.....
Beverages:		
Alcoholic	92	3
Bottled sodas and ciders	194	30
Non-intoxicating cereal	103	.....
Canned fruits and vegetables	9	4
Cereal products	18	5
Coffee	6	1
Chocolate and cocoa	5	.....
Confectionery	8	.....
Dairy products:		
Butter	61	16
Buttermilk	1	.....
Cheese	1	.....
Cream	38	5
Ice cream	32	2
Milk	214	47
Milk, condensed	9	3
Milk powder	4	2
Extracts and Flavors:		
Lemon	22	9
Mixed flavor	1	.....
Orange	1	1
Strawberry	1	.....
Vanilla	8	2
Formaldehyde	1	.....
Honey	8	3
Hydrogen dioxid	11	9
Jams and Preserves	1	.....
Human Milks	7	.....
Lard and Lard Compound	82	21
Meat Products:		
Hamburger	49	6
Meat	4	.....
Pork Sausage	25	1
Pork and Beef Sausage	3	1
Weinerwurst	1	.....
Medicine, Proprietary	7	.....
Miscellaneous	19	.....
Oils:		
Mineral	1	.....
Olive	69	32
Salad (cottonseed)	1	.....
Wintergreen	2	1
Oysters	4	3
Preservatives	4	3
Salt	3	1
Spirit of Jamaica Ginger	2	1
Spirit of Peppermint	1	.....
Sugar and Molasses	7	2
Toilet Preparations	6	.....
Tumeric	1	.....
Vinegars	20	2
Washing Powders	2	.....
Totals	1,173	213

-Per cent not passed, 18.15.

The following samples were received but not analyzed owing to their unsatisfactory condition on arrival at the laboratory:

Beverages 7, canned vegetables 5, condensed milk 1, cream 6, cheese 3, flour 1, ice cream 23, milk 29, lard 2, meat 1, drugs 2, total 79.

Acetylsalicylic Acid.

Three samples under the trade name of aspirin were examined and found to be as represented.

Baking Powder.

A can of baking powder suspected to contain injurious substances was examined. No harmful ingredients were detected.

Beverages.

Three hundred and eighty beverages were analyzed and reported during the biennial period. These may be divided into three classes according to their composition: alcoholic, bottled sodas and ciders, non-intoxicating cereal and malt drinks.

The alcoholic drinks examined were ninety-two in number. Several samples of whiskey were suspected to contain poison. One sample was found to consist almost entirely of fusel oil. Two samples contained methyl alcohol.

The bottled sodas and ciders examined totaled one hundred ninety-four, of which thirty were not passed; sixteen contained saccharin; fourteen were not properly labeled.

Of the samples found to be improperly labeled, the majority were labeled as true fruit drinks, when in reality they were not made from the fruit but were imitations artificially colored and flavored. A number of beverages called "Orange Crush" or "Lemon Crush" were declared misbranded because they were flavored with emulsified oils and were not made from crushed fruit as the names indicated.

The samples analyzed represent the bottled products made from the following bottling works:

Bozeman Bottling Works	Bozeman
Mountain Springs Bottling Works	Bozeman
Eureka Bottling Works	Billings
Eastern Montana Distributing Company	Billings
Nevin-Frank Company	Butte
Rosebud Bottling Works	Forsyth
International Bottling Works	Butte
Western Beverages Company	Butte
Northwestern Bottling Works	Butte
Keenan Manufacturing Company	Butte
Holland Rink Bottling Works	Butte
Butte Bottling Works	Butte
Blue Rock Products Company	Fairview
Jos. Lamarche	Butte
Glendive Bottling Works	Glendive
St Louis Bottling Works	Great Falls
Great Falls Bottling Works	Great Falls
City Bottling Works	Great Falls
Charles Gies Company	Great Falls

P. E. Johnson	Great Falls
Helena Bottling Works	Helena
Broadwater Bottling Works	Helena
Kalispell Bottling Works	Kalispell
Myers Bottling Works	Lewistown
Judith Bottling Works	Lewistown
M. W. Milligan	Miles City
Majestic Bottling Works	Missoula
J. E. Power Liquor Company	Missoula
J. C. Chambers	Polson
Red Lodge Products Company	Red Lodge
Roundup Bottling Works	Roundup

The non-intoxicating cereal and malt beverages are those which are made by fermentation and subsequent dealcoholization. They are commonly termed "near beers." One hundred and three samples of this class were analyzed, primarily for alcohol, but in some cases for solids, protein, ash, reducing sugars, and phosphoric acid. These samples were found to contain very little or no alcohol.

Canned Fruits and Vegetables.

Nine samples were examined, four of which were not passed. A can of peaches was analyzed and passed. Canned rhubarb was examined for poison but nothing abnormal was detected.

Canned peas marketed in No. 2 cans must contain not less than the net weight stated on the label and also must contain not less than thirteen and one-half ounces of drained peas. Of four samples examined for weight, two were below standard. One sample of liquid from canned peas contained hydrochloric acid. One sample of mushrooms showed the presence of portions of puff balls.

Cereal Products.

During the biennial period eighteen products of this class were received and examined. Five were not passed. Included in the list are flour, corn meal, rye bread, screenings, bran, shorts, rolled oats.

Coffee.

No adulterants were detected in five samples of ground coffee received in the laboratory. A pint of coffee prepared as a beverage was submitted for examination for added poison. The analysis showed positive tests for strychnine.

Cocoa Products.

Three cans of cocoa and two cans of chocolate and cocoa were examined and found to be normal in composition.

Confectionery.

Of the eight samples of confectionery submitted for analysis, seven were cases of suspected poison. No poisonous substances were detected. One sample of chocolate creams was tested for foreign materials such as fillers, but no such ingredients were found.

Dairy Products.

During the past two years three hundred and sixty samples of milk and its products were analyzed in the laboratory. In addition, sixty-two samples were received but were not analyzed owing to their unsatisfactory condition on arrival at the laboratory.

Of the total number received, the Montana State Dairy Commission submitted one hundred thirty-two. Eight of these were unfit for analysis when received. The remaining one hundred and twenty-four included butter fifty-five, cream thirteen, ice cream twenty-two, and milk thirty-four.

Butter was examined for excess moisture in all cases and in a few cases for foreign fats. Sixty-one samples were analyzed, sixteen of which were not passed because of excess moisture or short weight.

One sample of buttermilk was examined for foreign substances. No foreign injurious material was detected.

A sample of cheese was found to be normal.

Thirty-eight samples of cream were analyzed for per cent of butter fat. Five were below the standard set by law.

The standards for ice cream require ten per cent butter fat in plain cream. Two samples of thirty tested were below standard.

Milk must contain three and twenty-five hundredths per cent butter fat, and eight and one-half per cent of solids not fat. Preservatives of all kinds are prohibited. Two hundred and fourteen samples were analyzed. Forty-seven did not comply with the standards.

Condensed milk, evaporated milk, concentrated milk, shall contain not less than twenty-five and five-tenths per cent of total solids and not less than seven and eight-tenths per cent of milk fat. Seven samples were analyzed and three

failed to conform to the above standards. One sample each of sweetened condensed milk and condensed skimmed milk conformed to standards.

Three samples of dried skimmed milk and one of dried whole milk were analyzed. One skimmed milk powder and one whole milk powder were below standard.

Extracts and Flavors.

Thirty-three extracts and flavors representing many of the brands sold in Montana were analyzed during the past two years. The standard for lemon extract specifies five per cent of lemon oil. Result of analyses showed that seven samples were deficient in oil. A lemon flavor composed of lemon oil mixed with cottonseed oil was received for examination. The per cent of lemon oil could not be determined according to the usual methods, but the citral content was found to be two-tenths of one per cent, which was satisfactory. The product was properly labeled and therefore passed. A bottle of imitation lemon flavor was not passed because it contained no lemon oil and was deficient in citral.

A strawberry flavor and a sample of mixed flavors were both imitations but were labeled imitations.

Of eight vanillas examined, two were not genuine. One of them was entirely artificial; it was colored with caramel, contained coumarin and glycerin, and gave negative tests for vanilla resins.

Formaldehyde.

One sample of formalin was assayed, found to contain forty per cent of formaldehyde, and therefore passed.

Honey.

Strained honey is subject to adulteration principally with glucose or commercial invert sugar. Eight samples were examined, all of which were passed except three. Two contained invert sugar and the third was fermented and consequently unfit for sale as food.

Hydrogen Dioxid.

Standards for this product, which is marketed also under other names, such as peroxid and dioxygen, require not less than three per cent of hydrogen dioxid. Eleven samples were assayed. Nine of them failed to measure up to the requirements.

Human Milk.

Seven samples of human milk were examined at the requests of physicians.

Jams and Preserves.

Of this class of food products only one sample was received. Plum preserves which purported to contain only cane sugar showed the presence of commercial glucose.

Lard and Lard Compounds.

Lard is defined as exclusively the fat of the hog. The most common adulterants are beef and mutton tallow, and cottonseed products. The presence of fats other than hog fat is permitted if their presence is declared on the label and the product labeled lard compound. Eighty-two samples were examined, representing lards sold in forty cities in the state. Twenty-one samples were not passed because of the presence of foreign fat.

Meat Products.

Meat products were examined primarily for preservatives. Eighty-two samples were tested, and eight found to contain preservatives.

Of forty-nine samples of hamburger, six contained sulfite. One sample of pork sausage, of a total of twenty-five, gave positive tests for sulfite. One pork and beef sausage showed sulfite.

Proprietary Medicines.

Seven samples were submitted for examination. Five were alcoholic preparations which were classed as unfit for beverage purposes because of other ingredients contained. A cancer remedy was found on analysis to consist essentially of antimony and zinc chlorids.

Miscellaneous.

Under this heading are included nineteen samples not classified elsewhere. One ammonia water, one insecticide, a salad dressing, an egg powder, two acid solutions were examined and found to be within the requirements of the law. Seven substances were submitted for identification. Poison was suspected in four materials: tobacco, chewing gum and

two powders. Tests for poison were negative in each case. Two urine examinations were made at the request of physicians.

Oils.

One sample of mineral oil or liquid petroleum was tested and found to conform to pharmacopoeal requirements.

Sweet oil is defined as synonymous with olive oil. Sixty-nine samples purchased by inspectors at drug stores located in twelve cities, sixty labeled sweet oil and nine labeled olive oil, were examined for foreign oils. Thirty-two consisted wholly or in part of cottonseed oil, and hence were not passed.

One sample of salad oil labeled cottonseed was tested and found authentic. Of the two samples of oil of wintergreen analyzed in the laboratory, one was proved to be methyl salicylate or artificial oil of wintergreen.

Oysters.

Four samples of oysters were received during this period; three of them were not passed. One can of cove oysters was fermented and therefore unfit for food. Two samples of bulk oysters showed excessive water.

Preservatives.

A pickling compound was analyzed for prohibited preservatives. None were detected. Two meat preservatives showed on analysis the presence of sulfite. One sample of Mrs. Price's Canning Compound was found to consist of boric acid and common salt, confirming many previous analyses of the same product.

Salt.

Three samples of sodium chloride were submitted for poison analysis. Strychnine was found in one of them. No poisons were detected in the others.

Spirits.

Of three samples analyzed two were reported as not passed. One sample spirit of Jamaica ginger contained methyl alcohol; another sample was deficient in alcohol content. One spirit of peppermint conformed to standards.

Sugar and Molasses.

Six samples of sugar were received and examined, two of the number being classed as not passed. Three samples were colored. Examination showed that the colors were permitted dyes and therefore the samples were passed. Poison was suspected in two cases and examination showed strychnine in both samples.

A sample of molasses was found unadulterated.

Toilet Preparations.

Many toilet preparations are alcoholic and methyl alcohol is sometimes used instead of ethyl alcohol. Five articles of this class were examined and one sample of bay rum was found to contain methyl alcohol. One toothpaste showed nothing abnormal.

Turmeric.

No adulteration was detected in one sample submitted to analysis.

Vinegar.

Twenty samples were analyzed during this biennial period. One sample was not passed.

A survey was made of all kinds and brands of vinegar sold in the city of Bozeman. Nineteen samples were examined and all found in compliance with standards. The following kinds were included: cider vinegar 13, malt vinegar 2, distilled vinegar 3, acid vinegar 1.

Washing Powder.

Two washing powders were analyzed and both were found to be as represented.

